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ARTHUR J. EVANS

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Vol I

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SCRIPTA MINOA

THE WRITTEN DOCUMENTS OF MINOAN CRETE

WITH SPECIAL REFERENCE TO THE ARCHIVES OF KNOSSOS

BY

ARTHUR J. EVANS

VOLUME I

THE HIEROGLYPHIC AND PRIMITIVE LINEAR CLASSES

WITH AN ACCOUNT OF THE DISCOVERY OF THE
PRE-PHOENICIAN SCRIPTS, THEIR PLACE IN MINOAN STORY
AND THEIR MEDITERRANEAN RELATIONS

WITH PLATES, TABLES AND FIGURES IN THE TEXT

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PREFACE

THE aim of the present publication is to give in the first place a *Corpus* as complete as possible of the existing records of the script of Minoan Crete by means of photographic facsimiles and copies of the documents. In the second place I have endeavoured to supply a preliminary *apparatus criticus* in the form of tables and explanatory catalogues of the different signaries, the classification of the documents according to their form and contents, an analysis of the principal formulas employed, and an examination of the order in which the inscriptions run, often facilitated by the auxiliary marks that accompany them. It has, moreover, been possible to elucidate the different systems of numeration associated with the successive types of the Minoan scripts, and, in cases where the characters afforded an ideographic clue, to assign a meaning to certain sign-groups and formulas. But, in the absence of bilingual inscriptions, the material as a whole has not reached the stage when any comprehensive attempt at interpretation or transliteration is likely to be attended with fruitful results. The present work is of a more preliminary nature, and the main object before me has been so to set forth the evidence as to supply a basis for further studies.

But in a World so new, where it has been necessary in a large measure to quarry the material as well as to lay foundations for the future fabric, my task could not be limited to a mere reproduction and analysis of the inscriptions. These have to be also considered in their broad anthropological aspect as a singular, in many respects an unique illustration of the evolution by successive stages of an advanced system of script out of the universal elements of primitive pictography. In a more special way these various stages have to be placed in their relation to the several periods of the marvellous civilization of ancient Crete, to which in a comprehensive and generalized use of the word I have ventured to apply the word 'Minoan'.[1]

[1] As at least a convenient term for the prehistoric civilization of Crete, the word has now acquired a general currency in France, Italy, the United States, and our own country, as well as among many German scholars. In extending to the word a dynastic sense we have at least the warrant of the ancient tradition preserved by Diodoros, who, like Herodotos, seems to have drawn largely from Eteocretan sources, that there were two kings of the name of Minos (iv. c. 60, § 25). As I have pointed out

For these reasons the First Part of the present volume has been devoted to a summary view of all the successive types of Minoan script, including the primitive pictographic, the hieroglyphic, and the advanced linear classes. Their genesis is traced from a widespread European family of immemorial antiquity, and the place occupied by them among other early forms of writing traceable throughout the Mediterranean basin is as far as possible defined.

Following on the clue first given me by some hieroglyphic seal-stones in 1893, the course of the discoveries on Cretan soil is here sketched out, leading up to the dramatic fulfilment of my most sanguine expectations on the Palace hill of Knossos. The archaeological evidence produced by the various deposits in which the successive types of script occurred—primitive pictographic, hieroglyphic, and the advanced linear of Classes A and B—is brought to bear on their historic sequence. The equations, moreover, supplied by the association of certain Egyptian relics in the same or parallel strata are shown to supply some fixed chronological points of the greatest value.

Some interesting evidence is here brought together indicating a late survival of the knowledge of writing in the decadence of Minoan and Mycenaean culture, and the abiding traditions of its former existence among the later Eteocretans who represented the remains of the indigenous stock in Hellenic times. On the other hand, attention is called in Part I, Section 13 to a curious record which may be certainly taken to show that

elsewhere (*Essai de Classification des Époques de la Civilisation minoenne*), the term 'Minoan' has at least the advantage of not transgressing the limits of ethnographic neutrality. To make use of 'Minos' like Caesar or Pharaoh does not raise the vexed questions of Carians and Pelasgians, of the Achaeans, or even the Libyans. There may of course have been more than one early dynasty in prehistoric Crete, but the course of its civilization as a whole is continuous and homogeneous. The great Age of the Cretan Palaces, moreover, suggests the idea of a centralized and dynastic government. The word 'Minoa' moreover, applied by the Greeks to so many early colonial offshoots of Crete from Gaza to Western Sicily, seems to reflect the enterprise of its great prehistoric Age—when the sea-power of the Lords of Knossos was predominant throughout a large part of the Mediterranean basin. The archaeological corroboration of this conclusion is now coming out in the discovery of imported 'Minoan' objects from Palestine to Sicily and Spain.

It is true that my friend Professor Ridgeway, with his accustomed loyalty, has informed me that he is going to oppose the view that Minos I or II had any connexion with the great Palace Period of Knossos. He would bring the first Minos (with Diodoros, he distinguishes two), as the destroyer of the Palace, at the head of the first wave of fair-haired invaders in the Ægean.

Surely this is very hard on Minos. I can answer it by one *argumentum ad hominem*. It was Minos not as destroyer but as builder of his Palace-shrine, the Labyrinth, and patron of the great craftsman, Daedalos, who led me to the site of Knossos. Had I not taken another view of ancient tradition this book at any rate would not have been written.

a discovery of Minoan tablets had actually taken place in Nero's time and had puzzled the antiquaries of those days.

Throughout the work special attempts are made, by means of comparative tables drawn out by the author, to investigate the possible relations of characters belonging to the various Minoan signaries with those of other ancient systems found in different parts of the Mediterranean basin. Detailed comparisons with the later Cypriote syllabary have been reserved for the succeeding volume that deals with the linear scripts of Crete. It has been demonstrated, however, in Section 9 that a provincial branch of the Minoan script existed in Cyprus at a much earlier date. In Section 10, moreover, 'Cretan Philistines and the Phoenician Alphabet,' I have ventured further to develop a thesis first brought forward by me in my preliminary work on 'Cretan Pictographs' published in 1895.[1] It will be seen that the suggestion there put forth that the letters of the Phoenician alphabet were originally selected from a Minoan signary has been to a very considerable degree reinforced by the much more copious material now at hand. In view of the parallelism shown in Tables V, VI, VII, between the Semitic letter-forms and a series of Minoan characters, it may be fairly claimed that a true relationship has been made out.

The Second Part of the present volume concerns the hieroglyphic script of Crete and the more primitive stages of pictography out of which it arose. The material here put together includes both seal-stones and inscribed clay documents, copies of each example being inserted in the text[2] in addition to the photographic plates. It will be seen from Section 2, and especially Table XII, that a new *terminus a quo* for the use of the advanced pictographic class has been supplied by comparisons drawn from a group of Egyptian or Egypto-Libyan 'button-seals', dating from the Sixth to the Eleventh Dynasty. The Cretan hieroglyphic script is itself shown to be essentially an independent growth out of pre-existing indigenous elements, but evidence is brought forward in Section 10 to suggest that the Egyptian hieroglyphic system may have exercised a certain formative influence on the Minoan, and that one or two Egyptian signs were actually taken over.

[1] The main points of this thesis had been brought by me before the British Association in 1894.

[2] The copies of the clay documents have been traced by me with the aid of photographs on bleaching-out paper, the tracings in each case being subsequently corrected by comparison with the original. The copies of the seal-stones are mostly due to Mr. F. Anderson, who executed them with the aid of enlarged photographs.

In Section 8 is given a complete list of the Cretan hieroglyphs as at present known, showing the glyptic and graffito variations of each, together with explanatory notes, while the entire signary is reproduced in the two Tables XIII, XIV. Apart from the purely phonetic value of these signs, as syllables or even letters, there are evident traces of ideographic usage. We thus obtain a probable interpretation of certain recurring formulas that may be taken to represent official titles, and are principally found on the signets. The association of these formulas, moreover, with a series of 'canting' animal badges on seals of more than one period, leads to the further conclusion that we may have here the titles of a succession of Minoan dynasts. In Table XXII I have even attempted, on the basis of these sphragistic connexions, a kind of 'family tree', which may eventually be found to have a real historic value. The personal bearing of one of the most constantly recurring of these formulas is brought out by the circumstance that it is coupled on a sealing with a sharply characterized male head, in which we may fairly recognize the effigy of a Minoan king. This head is otherwise associated with that of a boy—the son, it is natural to assume, of the elder personage—much as Severus and Caracalla were associated on Roman dies. Apart from their connexion with the hieroglyphic formula, these sealings are of extraordinary interest as exhibiting what must be regarded as the earliest attempts at individual portraiture in the European world.

While this volume was in the press a remarkable discovery of a hieroglyphic disk, made by the Italian Archaeological Mission at Phaestos, has introduced a wholly new element into the documentary evidence of early writing in Crete. The importance of this new material was such that its omission from the present work would have rendered it incomplete and unsatisfactory. Thanks, however, to the great courtesy of its discoverer, Dr. Luigi Pernier, I was at once supplied with photographs of the Disk, and was thus enabled to make a preliminary study of the inscription before the appearance of his own publication in *Ausonia*.

In Part III of this volume, which is devoted to this unique record, I have had the advantage of comparing his results and of studying the Disk itself at first hand. It will be seen that the hieroglyphic system represented by it differs from the ordinary Minoan type. The crested head-pieces that appear among the characters recall, on the other hand, the familiar headgear of the later invaders of the Delta from across the 'Great Green Sea', among whom

the Philistines are grouped, and within whose orbit, later on, the Achaeans move. Moreover, a remarkable pagoda-like building repeated on the Disk will be seen to find its best parallels in the traditional Lycian architecture. It looks, therefore, as if the hieroglyphic system of the Disk may possibly be the product of some advanced culture, parallel with and allied to the Minoan, existing on the Western coastland of Asia Minor. Whole new horizons of investigation are opened out by this discovery.

My most cordial thanks are also due to Prof. Federico Halbherr, the head of the Italian Mission in Crete, whose own researches in the island go back to the discovery, some thirty-five years since, of the great Gortyna inscription, and who from the first extended his friendly help and encouragement to my own investigations. I have specially to thank him for placing at my disposal the clay documents illustrating the linear script of Class A, brought to light by himself and Dr. Paribeni at Hagia Triada, although, owing to causes which all must regret, he has not as yet been able to complete their preliminary publication. In Volume II of this work I shall venture to take full advantage of the permission so liberally accorded.

My thanks are also largely owing to Dr. Joseph Hazzidakis, Ephor-General of Cretan Antiquities and Director of the Candia Museum, who has in every way facilitated my studies, as also to his colleague the Ephor Dr. Stephanos Xanthudides, who has himself published valuable materials relating to the Cretan seal-stones. To my English fellow workers, the successive Directors of the British School of Athens, Mr. D. G. Hogarth, Professor R. Carr Bosanquet, and Mr. R. McG. Dawkins, I am indebted for the free use of the inscribed objects and sealings unearthed through their excavations at Zakro and Palaikastro, on the East of Crete; and with these I am also glad to couple Mr. Richard Seager, the American explorer, who has done such successful work at Pseira and Mochlos. Last, not least, in all that relates to the work of excavation at Knossos itself, and the analysis of the various deposits in which the inscribed documents were found, my warmest acknowledgements are due to my Assistant and Colleague, Dr. Duncan Mackenzie.

In a more general way I must here record great indebtedness to those who, by subscribing to the Cretan Exploration Fund, initiated in 1899, have done so much to forward these researches, and notably to Mr. George A. Macmillan, the Hon. Treasurer of the Fund, whose energy and enthusiasm

have never failed. Without the liberal assistance thus afforded it would have been impossible to support the very considerable financial strain due to the excavation of the Palace site of Knossos, in the course of which the great bulk of the inscribed Minoan documents have been brought to light.

The remaining Volumes—II and III—of this work will be devoted to the detailed publication of the documents of the advanced Linear Scripts of Crete, of both Classes (A and B). Volume II will contain copies of the inscriptions, complete signaries, an analysis of the scripts and documents, and illustrative commentaries. Volume III will consist of photographic plates of the inscribed tablets belonging to this category.

ARTHUR J. EVANS.

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PART I

EVANS

PART I

THE PRE-PHOENICIAN SCRIPTS OF CRETE. THEIR MEDITERRANEAN RELATIONS AND PLACE IN MINOAN STORY

I. § 1. ANTIQUITY AND EUROPEAN DIFFUSION OF PICTOGRAPHS AND LINEAR SIGNS[1]

Evidence of writing absent from Schliemann's discoveries.

Schliemann's epoch-making discoveries at Mycenae in 1876 first brought out the fact that the classical civilization of Greece had been centuries before preceded on Hellenic soil itself by another in many respects highly developed form of culture. The skill already attained by the 'Mycenaean' craftsmen in architecture and sculpture, as well as in such minor arts as gem-engraving, metal-work, and vase-painting, excited general admiration. But in the midst of this brilliant picture of early Aegean civilization there was one notable lacuna. No evidence of the existence of an indigenous system of writing was as yet forthcoming. Amongst all the varied objects obtained by Schliemann in the course of his excavations no single written document was brought to light.

Signs on vase handles found by Tsuntas.

Subsequent researches in the same field had produced, indeed, certain indications calculated to give pause to those who attached too absolute a value to these negative phenomena. Apart from the occurrence of some single signs, one engraved on a stone pestle,[2] others on the handles of two amphoras[3] and of a painted vase of very late 'Mycenaean' fabric,[4] two incised groups of signs had already occurred on vases. One of these groups was engraved on the handle of an amphora, found in 1890 by Dr. Tsuntas, the worthy continuator of Schliemann's researches, in a chamber-tomb at Mycenae.[5] The amphora in this case was of Egyptian type, and each of the three incised signs could be paralleled on Egyptian sherds. A fragment,

[1] In this Section and the following free use has been made of the materials in my preliminary works entitled *Primitive Pictographs and Prae-Phoenician Script in Crete and the Peloponnese* (London, Quaritch, 1895, and *J. H. S.*, xiv, Pt. II) and *Further Discoveries of Cretan and Aegean Script* (London, Quaritch, 1898, and *J. H. S.*, xvii).

[2] Tsuntas, Πρακτικὰ τῆς Ἀρχαιολογικῆς Ἑταιρίας, 1889, p. 19; Tsuntas and Manatt, *Mycenaean Age*, i. 268.

[3] Tsuntas, Μυκήναι, p. 113; Tsuntas and Manatt, op. cit., p. 268. These amphoras had been found in the tomb of Menidi, but the incised marks on them were not noticed till Dr. Tsuntas called attention to them in 1893. One shows a character like a Greek Π, the other a sign ‡, identical with the Cypriote *pa*, *ba*, or *pha*.

[4] Ἀρχαιολογικὸν Δελτίον, 1892, p. 73, and Tsuntas and Manatt, op. cit., p. 268, Fig. 137. It was found by Dr. Staes in a tomb at Pronoia, near Nauplia. The vase has three handles, on each of which is incised the sign H, but with offshoots from the top of the upright strokes.

[5] Tsuntas, Μυκήναι, pp. 213, 214, Fig. 2. Tsuntas observes (p. 215) that the amphora was of Egyptian form, resembling one from Gurob. (Petrie, *Kahun, Gurob, and Hawara*, Pl. XX. 13.)

however, of a stone vessel of undoubtedly indigenous form, found in 1892 among the ruins of a house on the Acropolis at Mycenae, showed four or five characters engraved on the handle.[1] A variety of isolated signs and some groups had been discovered by Professor Petrie in 1890 on sherds belonging to the Nineteenth Dynasty settlement of Gurob in Egypt, where imported pottery of the 'Late Mycenaean' class was also discovered. As will be pointed out below,[2] these Egyptian marks—which can be traced back to the prehistoric period—supply some valuable parallels with those of the Aegean world. It must, however, be observed that those found at Gurob, and in the still earlier settlement of Kahun, were in no single instance incised on pottery that can, with any probability, be regarded as of Aegean fabric.[3]

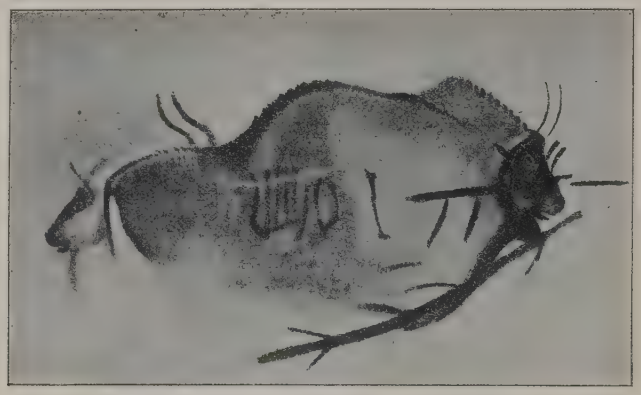


Fig. 1. Wall-painting in the Grotte de Marsoulas.

Negative conclusion of Perrot.

Notwithstanding the isolated finds on Greek soil referred to above, it was still possible for M. Perrot, in the volume of his great work devoted to 'Primitive Greece and Mycenaean Art', published in 1894, to sum up the evidence as follows:[4] 'The first characteristic that attracts the historian's notice when he tries to define the prae-Homeric civilization is that it is a stranger to the use of writing. It knows neither the ideographic signs possessed by Egypt and Chaldaea nor the Alphabet, properly so called, which Greece was afterwards to borrow from Phoenicia.' He admitted, indeed, that some of the marks recently noticed on the vase-handles bore

[1] Tsuntas, Μυκῆναι, p. 214, Figs. 3 and 4, and p. 215; Tsuntas and Manatt, op. cit., p. 269, Figs. 138, 139. It is impossible, however, to fit on this group to any of the Cretan systems.

[2] See Part II, § 2, Table X.

[3] The heading of Plate XXVIII in Prof. Petrie's *Kahun, Gurob, and Hawara*, which contains fragments of 'Late Mycenaean' pottery above and various pot-marks below, is liable to mislead. The plate is labelled 'Gurob Foreign Pottery and Marks, XIX Dyn.' But none of the marks occurred on the Mycenaean sherds. And whether or not the marks themselves were incised on pottery which Prof. Petrie himself regards as 'foreign', the great majority of them are demonstrably of Egyptian derivation.

[4] Perrot et Chipiez, *La Grèce primitive: l'art mycénien*, p. 985. In describing the marks on the Knossian blocks, first noticed by Mr. Stillman, M. Perrot had previously admitted (op. cit., p. 461) that the Cypriote signs might have had an Aegean extension 'during a certain time'. But the subsequent passage on p. 985 retracts this admission so far as the Mycenaean period is concerned. It had been suggested by Dr. Reichel (*Homerische Waffen*, p. 142) that certain curvilinear designs below the combatants on the silver vase fragment from Mycenae (Ἐφ. Ἀρχ. 1891, Pl. II. 2) were signs in an unknown script. But as I have elsewhere shown (*J. H. S.* xiii, 1892-3, p. 199, n. 11[a]), the figures in question represent throwing-sticks.

resemblances to letters either Greek or Cypriote, but he observes that 'they do not seem to form words' and that they are perhaps nothing more than the marks of the potter or of the proprietor, or mere ignorant copies of the signs then in use in Syria and Asia Minor. 'As at present advised,' he concludes, 'we can continue to affirm that for the whole of this period, nowhere, neither in the Peloponnese nor in Greece proper, no more on the buildings than on the thousand and one objects of luxury or domestic use that have come out of the tombs, has there anything been discovered which resembled any kind of writing.'

Contrary presumptions.

Was this great early civilization, then, altogether dumb? Were the builders of the 'Treasury of Atreus', of the elaborate palace-citadels of Tiryns and Mycenae, the carvers of the Lions' Gate, so far below the level of their contemporaries not only in Egypt and Babylonia, but throughout the vast Anatolian and Syrian regions over which are scattered the inscribed monuments of the Hittite princes? Was it possible that such masterpieces as the intarsia designs of the daggers from the Acropolis tombs at Mycenae, the intaglios of the signets, the living reliefs of the Vapheio vases, were the work of 'Man before Writing'?

Universality of early picture-writing.

Such a conclusion I could not bring myself to accept. So much at least was clear. The germs of written communication must have long pre-existed in the Aegean area. The practice of picture writing—or 'pictography'—to use the word in its most comprehensive sense as covering carving on rocks and other materials, whether or not overlaid with colour—is almost universal among savage races. It is therefore incumbent on us to believe that the elements out of which all more developed systems of writing grew must have been diffused in Europe as in other quarters of the globe from the most primitive period. No doubt the perishable nature of many of the materials used has been generally fatal to the survival of the primitive pictographs of our Continent on any large scale. If we had before us the articles of bark and hide, or wood, once used by Early Man, or could still see the tattoo-marks on his skin, we should have a very different idea of the part once played by picture-writing on European soil.

Fig. 2. Signs on fragment of reindeer horn.

Linearized signs already in Reindeer Period.

As a matter of fact the earliest human works of art belonging to the Reindeer Period comprise a whole cycle of pictorial records of the chase and of the domestic chronicles of primitive man, carved on ivory or bone, or engraved and painted on the rock itself, which only differ by their surprising skill in draughtsmanship from similar examples of picture-writing produced by modern savages. Animals moreover at times appear with signs (Fig. 1) or marks of ownership, and the law of abbreviation, by which a part represents the whole, is already in frequent operation. Signs of curiously alphabetic aspect—at times even in groups—are seen engraved on reindeer-horns[1] (Fig. 2) or ivory, or on the surface of the rock itself, in one case three

[1] Groups of such signs are seen on sections of reindeer-horn from the Grotte de Lorthet, Hautes-Pyrénées (E. Piette, *Anthropologie*, vii, p. 417, Fig. 78), and also from the Grotte de Gourdan, Haute-Garonne (op. cit., p. 422, Fig. 91, reproduced in Fig. 2 above). On this subject I may refer to my Lecture on 'The European diffusion of Pictography and its bearing on the origin of Script', in *Anthropology and the Classics*, Oxford, 1908, pp. 12 seqq.

such signs appearing on a horse's flank.[1] Similar characters occur in connexion with animals in the marvellous rock-paintings of the Altamira Cave near Santander,[2] and in the kindred paintings on the walls of the Grotte de Marsoulas in the Haute-Garonne, belonging to the same 'Magdalenian' period as the Cantabrian cave.[3] One of these shows a bison with three signs painted on his flank in red ochre (Fig. 1).[4] Certain signs (Fig. 2) carved on a fragment of reindeer horn are specially interesting from the primitive anticipation that they present of the Phoenician *alef*. It is interesting to observe, however, that though these early marks often appear in

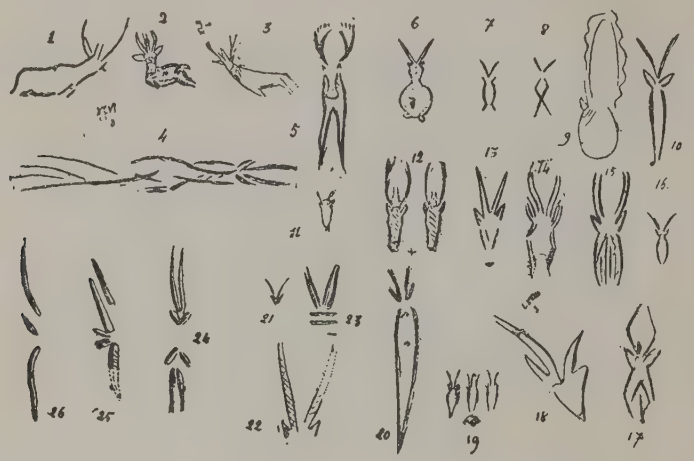


Fig. 3. Table showing degeneration of goat's-head pictograph. (Magdalenian Period.)

this linearized and almost alphabetic form, it is sometimes possible to trace these back to pictorial prototypes. Thus a Table recently published by the Abbé Breuil,[5] here reproduced in Fig. 3, shows the regular degeneration of pictographic figures of goats' heads into mere linear marks. It must at the same time be observed that the earliest pictographs, as seen in the lowest layers of the rock palimpsests of the Pyrenaean Caves, themselves present simple linear forms nearer to alphabetic types than those found in the more advanced stages of this 'parietal' art.

Survivals of pictography in far North.

The picture records and conventionalized signs of the men of the Late Palaeolithic Age may be almost said to belong to another world. The fauna, climate, and

[1] Among the rock engravings of the Grotte de la Mouthe near Combarelles in the Dordogne described by Messrs. Capitan and Breuil. A lozenge-shaped mark, perhaps a sign of ownership, appears on the flank of another horse.

[2] E. Cartailhac et L'Abbé H. Breuil (*Anthropologie*, xv (1904), pp. 630, 631). The wall-paintings of the Cave of Altamira were discovered by Señor de Santuola in 1879, but their methodical investigation was first due to Messrs. Cartailhac and Breuil. The materials will shortly receive full illustration in a special work by the explorers.

[3] Cartailhac et Breuil (*Anthropologie*, xvi (1905), pp. 440, 441, and Fig. 10).

[4] Op. cit., p. 438, Fig. 8.

[5] *Congrès International d'Anthropologie et d'Archéologie préhistoriques*, XIII^me^ Session, 1906, T. I., p. 398, Fig. 145 (Monaco, 1907). E. Piette, *Les galets coloriés de Mas-d'Azil*, (*Anthropologie*, vii, pp. 385–427), has published a series of coloured pebbles showing remarkably alphabetiform types, but these belong to an early Neolithic stage.

geographical configuration of our quarter of the globe alike have changed since then. It is interesting, however, to observe that among the existing peoples of the extreme North of Europe, whose conditions most nearly represent those of the old Reindeer folk, the relics of pure pictography were preserved to modern times. The figures on Troll-Drums of the Lapp Shamans afford excellent examples of such, the lingering traditions of which have been preserved to our days.[1] But these Lapp pictographs themselves belong to a widely diffused primitive group illustrated by the paintings and carvings on rocks and other materials—which extends across the whole Fenno-Tataric region from the White Sea to the Urals and throughout Siberia to the borders of China.[2] It was probably from an early offshoot of this great family of pictorial signs that the elaborate characters of the Chinese writing were ultimately evolved.

In Scandinavia.

So close is the parallelism presented by some examples of this widespread, and not yet wholly extinct, Northern group, with the early pictographs of Scandinavia,[3] that it may well be asked whether an original relationship may not have existed. The picture-writing, of which we find the prehistoric traces in so many parts of Europe, certainly reveals a considerable interrelation over somewhat wide geographical areas. The Scandinavian pictographs of the Bronze Age, as we see them illustrated by the rock-carvings of Bohuslan and Scania, present some curious points of agreement with the contemporary figures carved in the Irish megalithic chambers, like New Grange, which carry us on in turn to Gavr Innis.[4]

The Iberic Peninsula and N. Africa.

So, too, the engraved pictographs on the megalithic blocks of Brittany find their continuation in those of the Portuguese dolmens of Traz-os-Montes,[5] and the 'Piedra Escritá' and other similar monuments of Andalusia.[6] These again lead us beyond the Straits to the 'Written Stones'—'Hadjrat Mektoubat'—of North-Western Africa,[7]

[1] For examples of the figures on the Lapp Troll-Drums, see Scheffer's *Lapponia* (1673 ed.), pp. 125, 127, 128, 129, and the Engl. ed. (1704), pp. 130 seqq. In a journey through Russian and Finnish Lapland in 1876 I noticed the correspondence of certain figures engraved on horn spoons still in use with those of the Troll-Drums.

[2] Some good early illustrations of this group will be found in Strahlenberg, *Description of Russia, Siberia, and Great Tartary* (Engl. transl., 1738, pp. 346 seqq., and Plates VII, VIII, XI). Strahlenberg himself notes (p. 347) that many of these 'figures' or 'characters', 'which are pretended to have a secret signification, are to be found in Siberia and Tartary upon rocks or stones, either carved or painted in the same manner almost as the Laplanders are wont to paint their drums'.

[3] A pictographic record—one of a series of similar records—painted on rocks 'with a red, indelible colour', and copied by Strahlenberg near 'the City of Tzerdyn in Great Permia' (op. cit., p. 347 and Plate VII), displays a curious resemblance to some of the rock-carvings of Bohuslan.

[4] Thus the pictographic rendering of a boat with men in it, common on the Scandinavian rock-carvings, reappears, as noticed by Mr. G. Coffey (*Trans. R. I. Acad.*, 1892, pp. 32 seqq.), in a secondary guise on the walls of New Grange, and is seen in a still more rudimentary form at Gavr Innis. A very similar sign can be traced as far as Andalusia.

[5] Ricardo Severo, *As necropoles dolmenicas de Traz-os-Montes* (Portugalia; Oporto, 1903), has published various materials regarding these. Unfortunately, a good deal of uncertainty (to say the least) attaches to some of the evidence.

[6] Good examples of the inscribed figures on the Piedra Escritá, near Fuencaliente, are given by Don Manuel Góngora y Martinez, *Antigüedades prehistóricas de Andalucía*, pp. 65–7.

[7] G. B. M. Flamand, *Les Pierres écrites* (Hadjrat Mektoubat) *du Nord de l'Afrique et spécialement de la région d'In-Sâlah*, Congrès International d'Anthropologie et d'Archéologie préhistoriques, Paris, 1900.

which extend into the Sahara region and find their analogies in the rock-carvings of the Canaries.[1]

Maritime Alps, &c.

In the Maritime Alps, on ancient lines of transit between Provence and the Po Valley, a similar phenomenon recurs in the rock-carvings known already in mediaeval times as the 'Meraviglie'.[2] Still better examples of these 'marvels' have been recently discovered by Mr. Clarence Bicknell[3] at Fontanalba, in the same region, reproducing many of the characteristics of the Scandinavian group and affording conclusive evidence that they also go back to the Bronze Age.[4]

Extension to Danube Valley. Thrace and Asia Minor.

Akin to the appearance of such early figures on rocks, of which further examples might be cited in the Vosges, the Jura, and the Dalmatian coast, are the linear marks that make their appearance on primitive pottery. It is interesting, therefore, to observe that the best collection of such signs on primitive European pottery (excepting for the moment the Aegean area) is due to the researches of Fräulein Torma, at Broos, in Transylvania—on the borders, that is, of that great Thracian province the primitive culture of which, like its ethnic elements, shows so many points of affinity with that of Western Asia Minor. Like the rude faces on the urns with which they are associated, the signs on the whorls and vessels from this site display a remarkable parallelism with those found by Schliemann on similar materials at Hissarlik.[5]

Dacian and Trojan signs.

It is true that many of these marks, both Dacian and Trojan, are 'vain repetitions' due to the decay of decorative elements, themselves of skeuomorphic origin. Others, however, are no less certainly the linear equivalents, such as a child draws on a slate, of objects or figures, and must have had definite meanings. Such early linearizations, by means of which certain ideographic signs were invested with simple geometrical forms, are, as will be pointed out below, of great importance in their bearing on the evolution of later syllabaries and alphabets. But the attempt of some scholars[6] to read off the rude graffiti of Hissarlik by the light of the

[1] Verneau, *Rapport sur une Mission scientifique dans l'archipel Canarien.*

[2] For a review of the literature regarding the Meraviglie, see Issel, *Le rupi scolpite nelle alte valli delle Alpi Marittime* (Bull. di Paletnologia Italiana, 1901). They were first scientifically described by F. G. S. Moggridge (*Transactions of the International Congress of Prehist. Arch.*, 1868, pp. 359 seqq.). In 1893, I had an opportunity of examining other rock-carvings of the same class under the guidance of Padre Amerano, at Orco Feglino, near Finalmarina.

[3] C. Bicknell, *Proc. Soc. Ant.*, Dec. 9, 1897; and *Further Explorations in the Regions of the Prehistoric Rock Engravings in the Italian Maritime Alps*, Bordighera, 1903.

[4] The characteristic Bronze Age halberd is constantly repeated among the arms. See my observations, *Athenæum*, Dec. 18, 1897.

[5] I have to thank my friend, Prof. F. Haverfield, for a series of drawings of characteristic objects from Broos, made by him, on the spot, with the kind permission of Fräulein von Torma, including a collection of the marks on the pottery (see my *Further Discoveries*, &c., p. 391). A critical review of the materials, now in the Kolosvár Museum, has been recently published by Dr. Hubert Schmidt (*Tordos*; *Z. für Ethnologie*, 1903, pp. 438 seqq), together with detailed comparisons between the pottery-marks and those of Hissarlik, the Aegean lands, and Early Egypt. The place occupied by these signs in the evolution of script is justly appreciated by Dr. Schmidt.

[6] The results were naturally very discordant. Thus the signs on the whorl, No. 1524, were variously read *θείῳ Σιγῷ*, 'to the divine Sigo' (Haug); *ta-go-i di-o-i*, 'to the divine General' (Gomperz); and *Ye-le-vo ye-go* (Sayce). The materials are discussed by Sayce in *Ilios*, Appendix III, pp. 691 seqq.

later Cypriote or Lycian characters into Greek or some hypothetical Anatolian language did not sufficiently take into account the very early stage in this evolution occupied by the linear figures on the whorls, and failed to eliminate the elements due to the mere decay of decorative features with which they were associated.[1]

Such signs linear ideographs, not syllables or letters.

So far as they may be regarded as signs, it seems safest to interpret these rude linear figures on the Neolithic and Early Metal Age pottery of Hissarlik and Broos as simple ideographs rather than as syllables or letters. The alphabetic aspect of some of these will not mislead us when we recall at how far more remote a period in human history these linear simplifications of pictorial signs had already been attained. Such graffiti must be taken in connexion with the general prevalence of primitive picture and sign-writing in the culture that produced them. The Hissarlik evidence, fitting on, as it does, to that of the Danubian region, leads us on, in fact, to another wide field of early pictography which must once have embraced the whole of anterior Asia from the East Mediterranean basin to the Persian Gulf. On the Eastern side of this region, in Old Chaldaea, we are able to ascertain the former existence of this original picture-writing from the survival of certain selected signs, still traceable in the earliest Babylonian characters such as we see them at Nippur and Tello. In these regions the transformation into the more advanced cuneiform writing took place at a very remote period. In Syria and Anatolia, on the other hand, the traces of the purely pictographic stage of expression come down to a much later age. The characters of the Hittite script still retain the record of their pictorial origins in a more obvious form than the archaic Chaldaean documents, which antedate their earliest known examples by more than a millennium.

Early Chaldaean picture-writing.

Pictorial survivals in Hittite script.

Advance shown by cuneiform and hieroglyphic writing.

The cuneiform and Hittite characters, like the Egyptian hieroglyphs, illustrate a stage in the evolution of the art of writing of which there is no evidence in prehistoric times throughout the mass of the European Continent. We see here an artificial selection—in the primitive Babylonian system a very restricted one[2]—from the almost limitless field of primitive picture-signs. We see the results of organized convention and that great step is made towards the ultimate goal of alphabetic writing by which once solely ideographic signs can be used as phonograms without reference to their original sense, and are finally abbreviated into syllables or letters. This elaborate selection and systematization of primitive elements necessarily presupposes a highly centralized social and political organization. Wherever it has taken place, whether in Chaldaea, Egypt, or China, or among the Aztecs and

[1] Thus a constantly recurring decorative feature, consisting of a curved line with one or more curved lines within it (cf. *Atlas trojanischer Alterthümer*, Nos. 2504, 2984, &c.), is seen in various decadent shapes in turn suggestive of certain forms of the Cypriote characters, *re*, *le*, *go*, *ti*, *ye*, and *vo*, or the Lycian *ê*. Hence such imaginary readings as *go-go-ti-re* and *ti-u-ti-re-re*.

[2] F. Delitsch (*Die Entstehung des ältesten Schriftsystems, oder der Ursprung der Keilschriftzeichen*, 1897, pp. 209 seqq.) reduces the original elements of the 400 cuneiform signs of Babylonia to about 50. The primitive nucleus was added to by the formation of compound signs and by the differentiation of the original figures.

Mayas of ancient Mexico and Yucatan, we are able to trace the handiwork of royal and priestly castes—the two practically coinciding. The cuneiform system was developed out of existing picture-signs under the auspices of the first Chaldaean Monarchy and its successors. The Hittite script was a systematic elaboration, through the hands of their royal scribes, of the Khetan princes whose dominion extended over Syria and Anatolia even to the Aegean shores.

Had Hittite system offshoots beyond Aegean?

Had the offshoots of this Hittite Empire a still wider extension on the Aegean side? Might it at least have sufficiently dominated the prehistoric form of culture first laid bare by Schliemann's discoveries at Mycenae, to have anticipated the Phoenicians in supplying Greece with a system of writing—much, indeed, below the Phoenician level?

I. § 2. DISCOVERY OF THE SUCCESSIVE TYPES OF MINOAN WRITING

Characters like Hittite on seal acquired in Greece.

The possibility that a form of writing closely resembling, or identical with, the Hittite had been introduced into prehistoric Greece was first brought before me in a practical form in 1889. In that year a four-sided bead-seal of cornelian, bearing on each facet a series of figures as shown in Fig. 4, was presented amongst other objects

Fig. 4. Four-sided bead-seal of red cornelian from Crete (at first described as 'from Sparta').

to the Ashmolean Museum by that well-known antiquarian traveller the late Mr. Greville Chester. The stone was stated (erroneously, as it afterwards turned out) to have been found at Sparta.[1] That it represented some conventionalized system of picture-writing could not be doubted. The general resemblance of the figures upon its sides to the

[1] A full description of this seal is given below, in Part II, § 7.

Hittite characters, and in particular the identity of the wolf's (or dog's) head showing the tongue protruding, with a not infrequent Hittite sign, led me at the time to hesitate between the alternative hypotheses either that the inscribed seal was an imported object of 'Hittite' fabric or that a substantially identical system of conventionalized pictographic writing had been introduced into prehistoric Greece under some predominant 'Hittite' influence.

Reasons for regarding these as indigenous.

An objection, however, to the first alternative was to be found in the fact that no similar types of seal-stones were forthcoming from the Anatolian or Syrian side. And on the other hand, the generally independent character of the Mycenaean culture made it difficult to presuppose such an absolute indebtedness to Hittite sources in the matter of script. This high early civilization, organized as was shown by the Mycenae tombs under a succession of dynasts, presented just as favourable conditions for the rise of a conventionalized script as that of the regions to the East and South. The elaboration of a more advanced system out of the chaotic elements of primitive pictography achieved under the early monarchies in Mesopotamia, the Syro-Anatolian region, and Egypt, might with equal probability have taken place under the auspices of kings who reigned before Agamemnon on the Greek shores of the Aegean. Isolated as was this example, might it not really indicate the existence of an independent indigenous script in prehistoric Greece?

Further examples from Crete.

It was not long before decisive evidence came under my observation. In the course of a visit to Greece, during the early spring of 1893, I hit upon some more inscribed bead-seals of the same class as that referred to above. Like it they were perforated along their axis and presented four, in some cases three, facets engraved with signs, arranged in groups, and evidently belonging to a hieroglyphic or conventionalized pictographic system. My inquiries succeeded in tracing all of these to a Cretan source.[1] Knowing of the considerable collection of 'island' and other early gems in the Berlin Museum, I addressed myself to Dr. Furtwängler, whose catalogue of the collection was not then published, and received through his courtesy several impressions of similar seal-stones showing 'hieroglyphic' characters that fitted on to and supplemented the series that I had already collected. In this case, too, the source of the stones, as far as it was known, again turned out to be Crete. The impression of a two-sided gem of another type obtained at Athens some years earlier by Professor Sayce,[2] and which I subsequently discovered to be also Cretan, supplied a new piece of evidence. At a meeting of the Hellenic Society, on November 27, 1893,[3] I was thus able to make the formal announcement that I had discovered on a series of gems and seals mainly found in Crete[4] some sixty symbols which seemed to belong to a native system of hieroglyphics distinct from the Egyptian on the one hand and from the Hittite on the other.

Existence of hieroglyphic system ascertained in Crete.

[1] I subsequently discovered other examples with the same provenance (P. 11, 26 and 28 of the list below) in the collection of the Archaeological Society at Athens, since transferred to the Central Museum.

[2] See Pl. II, P. 41. The stone is now in the possession of Mr. H. N. Story Maskelyne.

[3] *J. H. S.* vol. xiv, p. 11.

[4] To Crete I also added 'the Peloponnese' on the ground of the erroneous provenance attached to Mr. Greville Chester's stone.

The evidence conclusively pointed to Crete as the principal source of these hieroglyphic forms, and it became obvious that the investigation must be followed out in that island. Various parallel researches connected with the origin of 'Mycenaean' and Greek civilization had been for some time prompting me to undertake the exploration of the prehistoric remains there, as yet practically untouched, in spite of the suggestive speculations of Milchhöfer[1], which had already done much to stimulate my own interest in the matter. To Crete I accordingly turned. Landing at Candia early in March, 1894, I made my way round the whole Centre and East of the island, including the mountainous districts of Ida and Dicta, the extensive southern plain of Messarà, and the sites of over twenty ancient cities. The number of relics illustrative of the early periods of Cretan culture that I was thus able to collect was surprisingly great, and in particular the accumulating evidence that the great days of the island lay beyond history. The Crete that thus began to open out was the Crete of the Homeric 'Hundred Cities', the realm of Minos, and it soon became obvious that none of the later phases there traceable—Dorian Greek, Roman and Byzantine, Saracen or Venetian—had left such abiding records in the soil as this very ancient civilization. And in what regarded the more special object of my quest these researches were well rewarded. One of their first results had been to discover in the hands of its original owner an impression of the four-sided seal (Fig. 4) which had been erroneously labelled by Mr. Greville Chester as having been found in Sparta. This also proved to be of Cretan provenance. The net result of these investigations was to enable me to announce, as I then wrote, the discovery *in situ* of a Pre-Phoenician system of writing in the island, of which two distinct phases were perceptible—one the conventionalized pictographic type represented by the seal-stones already mentioned, the other linear and quasi-alphabetic. Abundant evidence was also forthcoming of a still earlier usage of picture-signs out of which these more advanced methods of script had been successively evolved.

The author's explorations in the island in 1894.

Result in discovery of linear as well as hieroglyphic script.

The more linear signs occurred on pottery as well as stone. My search for perforated seal-stones and gems was greatly helped by a piece of modern Cretan superstition, shared by other islanders of the Aegean. Such conveniently bored stones are known to the Cretan women as γαλόπετραις or 'milk-stones', or sometimes γαλούσαις, or 'milk-producers', and are worn round their necks, especially in times of child-bearing, as charms of great virtue. It was thus possible, by making a house-to-house visitation in the villages, to obtain a knowledge of a large number of early engraved stones. I was often able to purchase them from the older women, and at times I succeeded in effecting an exchange of perforated gems of the most coveted milk-white hue, but of less archaeological importance, for others of greater interest. Even in cases where, owing to the magic power that was supposed to be inherent in a stone, I could not persuade the owner to part with it, it was generally possible to secure an impression.

'Milk-stones.'

[1] *Die Anfänge der Kunst in Griechenland*, Leipzig, 1883.

A summary account of the results of this first campaign in Crete was published in my 'Cretan Pictographs and Prae-Phoenician Script',[1] the principal materials of which, as better understood in view of subsequent discoveries, will be found more accurately classified in the present work. These explorations were continued during the early months of the years 1895 and 1896, and I was thus able to communicate

Further explorations, 1895, &c.

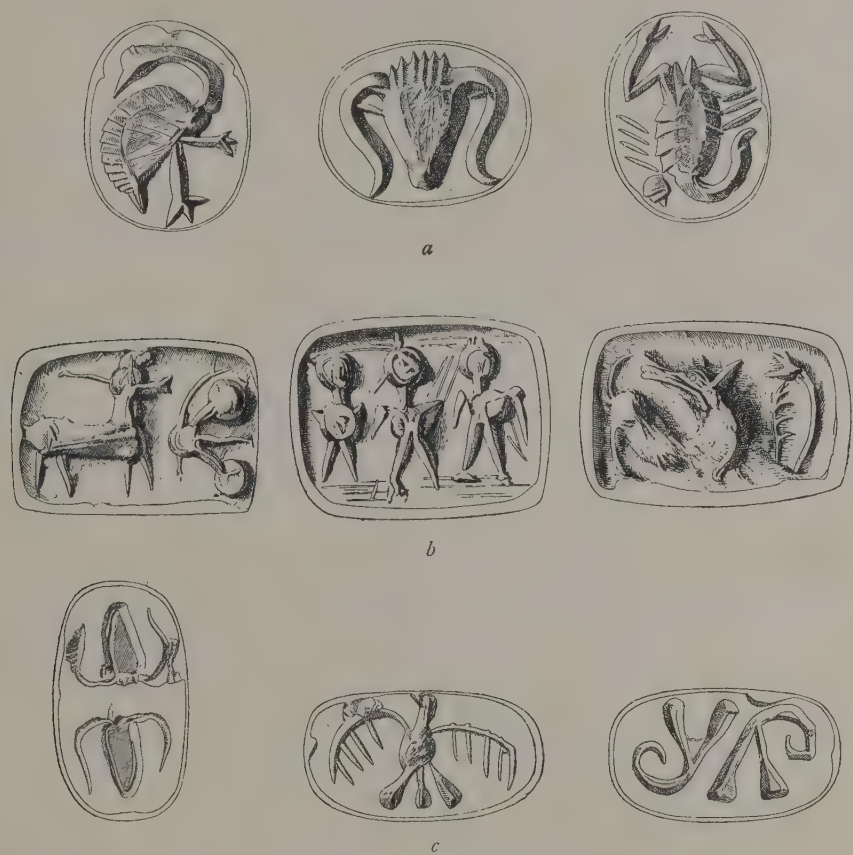


Fig. 5. Prism Seals with Primitive Pictographs.

to the Hellenic Society in November of the latter year a considerable mass of supplementary material.[2]

Part of the material collected during these expeditions obviously belonged to a very primitive stage of Cretan culture, here referred to as 'Early Minoan', including a series of bead-seals with pictographic figures (Fig. 5). Other objects showed linear signs, probably in this case preserving ideographic values, which must thus have

Primitive linear ideography in Crete.

[1] *J. H. S.* xiv (1895), pp. 270 seqq., and published separately, with appendices, by Quaritch & Putnam (London and New York, 1895). Preliminary accounts of these discoveries have been communicated by me to the *Athenæum* (June 23) and the *Times* (Aug. 29), 1894.

[2] *Further Discoveries of Cretan and Aegean Script with Libyan and Proto-Egyptian Comparisons* (*J. H. S.*, xvii. 327 seqq.), published separately by Quaritch (London, 1898).

already existed at a time when the 'conventionalized pictographic' or hieroglyphic Cretan system had not yet been developed.

Inscribed whorl from deposit of Hagios Onuphrios.

The most remarkable of these that came under my notice at the time of these preliminary explorations was a steatite whorl found, together with a clay cylinder presenting linear figures, in a very early deposit at Hagios Onuphrios[1] near the site of Phaestos, a detailed description of which, together with other examples, will be given below.[2] Recent discoveries have left little doubt that the deposit of Hagios Onuphrios that contained these objects represented the débris of a primitive bee-hive tomb or ossuary of a class of which examples have now been found by Dr. Halbherr at Hagia Triada and by Dr. Xanthudides at Kumasa near Gortyna, in the same Cretan region. Here it may be sufficient to say that these early ossuaries contain ivory bead-seals and other objects attesting the influence of Sixth-Dynasty Egypt, and that, in Cretan terms, they go back in the main to the Second or Third divisions of the Early Minoan Age. According to the lowest chronological scheme advanced by any Egyptologist this would take back the date of the primitive linear seals found in these deposits to the middle of the third millennium before our era.

'Early Minoan' ossuaries.

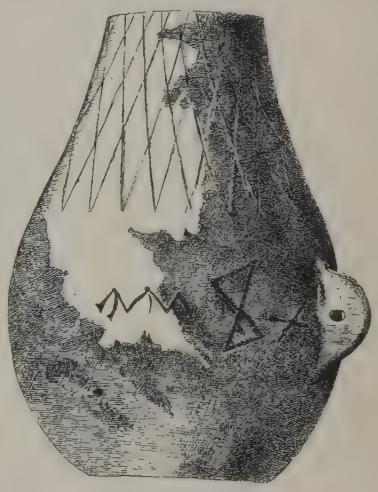


Fig. 6. Vase with Graffito Inscription, Prodromos Botsano.

Primitive pictographic bead-seals.

These early ossuaries have also been found to contain examples of a class of three-sided bead-seals of steatite engraved with figures of a primitive pictographic kind (see Fig. 5, *a*, *b*, *c*[3]), which supply the immediate antecedent stage to a similar class of seals, generally executed in hard stone, exhibiting the developed hieroglyphic script. A series of these pictographic prism-seals will be found collected in my earlier works.

Hieroglyphic 'signets'.

Early graffiti on vases in advanced Linear Script.

Further investigations greatly added to the number of seals of the true 'hieroglyphic' class, including a type curiously resembling a modern signet. Moreover, certain groups of graffito signs found on early vases already give indications of the existence of a more advanced class of linear script in which the characters seemed to have partially advanced beyond the purely ideographic stage and to have attained at least a syllabic value. The example from Prodromos Botsano[4] shown in Fig. 6 is of special interest, since similar vessels, one with remains of graffito characters, have been lately found by Dr. Xanthudides on a house floor at Chamaezi in Eastern Crete,[5]

[1] See my Supplement to *Cretan Pictographs*, pp. 105 seqq. (Quaritch, 1895).

[2] See Part II, § 1, *Primitive Linear Signs and Figures*, p. 117.

[3] These examples are taken from *Cretan Picts.*, &c. Fig. 5 *a* is from p. 72 [341], Fig. 64 (Yellow Steatite, Crete); *b* from p. 75 [344], Fig. 69 (Crete, Berlin Museum: Cat. No. 62, pale green steatite); *c*, p. 75, Fig. 70 (green steatite, Central Crete; A. J. E.).

[4] Op. cit., p. 10 [279], Fig. 5.

[5] Ἐφ. Ἀρχ. 1906, pp. 118 seqq., and cf. Pl. IX. 4.

together with clay human figures of a type that characterizes the votive deposits, like Petsofà, of the earliest part of the Middle Minoan Age.

Discovery of inscribed Libation Table in Dictaean Cave Sanctuary.

But the most remarkable example of a developed linear script that rewarded these earlier explorations belonged to an altogether different class of object.

On the steep of Mt. Lasethi, the culminating mass of the ancient Dicta, above the village of Psychro, and about four hours' mule journey from the site of the ancient Lyttos, opens a great cave, which, from the abundant remains of votive and sacrificial objects discovered within it, had been evidently a principal sanctuary of the prehistoric cult of the island.[1] There can indeed be little doubt that this was the Diktaion Antron of the Lyttian traditions, whither, according to the legend preserved by Hesiod,[2] Rhea took refuge to give birth to the Cretan Zeus. Rhea, as we now know, represents the great Nature-Goddess of Minoan Crete, part of whose mythic being was also perpetuated under later titles as Artemis Dictynna, the 'Sweet Virgin' Britomartis, the mysterious Aphaia, and Aphrodite Ariadne. With this great Minoan Goddess seems to have been associated a youthful male divinity, later identified by the Greeks with the Cretan Zeus. The aniconic or fetish forms of these, which could, through due ritual incantation, be charged, as it were, with the divinity, were the sacred Double Axes, of which numerous bronze examples were found in the Dictaean Cave, and the holy pillars of stone. A garbled reminiscence of such a stone, attaching to this very sanctuary, may be found, indeed, in the legend of the *βαίτυλος* swallowed by Kronos in place of his infant son.

The Minoan Nature-Goddess and Infant Son.

Sacred stone or ΒΑΙΤΥΛΟΣ of the cult.

Numerous representations of this ancient Stone and Pillar-Worship have been preserved for us in the subjects of the signets and wall-paintings both of Minoan Crete and of the Mycenaean mainland,[3] but a special interest attaches to the discovery of a material trace of this 'baetylic' cult in the Dictaean Cave itself.

Table found in sacrificial stratum: originally placed on ΒΑΙΤΥΛΟΣ.

In April, 1896, I obtained, from beneath a prehistoric sacrificial stratum, covering the vast 'Atrium' of the Cave, part of the black steatite slab of a table that had been provided with three shallow cup-like cavities for libations.[4] It had possessed four corner supports, and a larger central prominence below proved that it had been placed upon the top of a sacred cone or pillar in the manner shown in Fig. 7.[5] Its great antiquity is attested both by the position in which it was found and the resemblance of the cup-like cavities with their raised rims to libation cups of the same black steatite subsequently found among the fittings of a small early shrine of the Cretan Goddess in the Palace at Knossos. This latter piece of evidence as well as other comparisons of an epigraphic nature, to be referred to below, carry back its date at

[1] Preliminary investigations of this cave, resulting in the discovery of various votive objects, were made by Prof. F. Halbherr and Dr. Joseph Hazzidakis in 1886 (*Antichità dell' Antro di Zeus Ideo*, pp. 216 seqq.). For my own researches there from 1895 onwards, resulting in the discovery of the inscribed Libation Table, see *Further Discoveries of Cretan Script*, pp. 350 seqq., and *Myc. Tree and Pillar Cult*, pp. 13 seqq. (*J. H. S.*, xxi. 111 seqq.). In 1900 the interior of the cave was methodically excavated by Mr. D. G. Hogarth (*B. S. A.*, vi. pp. 94 seqq.).

[2] *Theogonia*, v. 477 seqq.

[3] See my *Mycenaean Tree and Pillar Cult*, London, Macmillans, 1901, and *J. H. S.*, xxi (1901), pp. 99 seqq.

[4] *Further Discoveries*, &c., pp. 350 seqq., and Figs. 25 *a*, 25 *b*. An additional fragment, not adding, however, to the inscription, was subsequently discovered by M. De Margne.

[5] See my *Mycenaean Tree and Pillar Cult*, pp. 14 seqq.

Triple receptacle for libations.

least to the early part of the second millennium before our era. The threefold receptacle of the Dictaean Table itself, indeed, suggests interesting analogies with a ritual usage that goes back to the earliest religious stratum of Greece. In the

Fig. 7. The Dictaean Libation Table and Baetylic Pillar, restored.

case of such primitive worship as that of the Shades of the Departed,[1] and again that of the Nymphs, a triple libation was frequently offered. The *μελίκρητα*, indeed, which, followed in turn by sweet wine and water, made up these offerings, would have been specially appropriate in the Cave Sanctuary where, according to the legend,

[1] In the *Odyssey* (x. 519-20) the offerings to the Dead before the falls of Styx are thus described:

Πρῶτα μελικρήτῳ, μετέπειτα δὲ ἡδέϊ οἴνῳ,
τὸ τρίτον αὖθ' ὕδατι.

the baby Zeus had been fed with this mingled milk and honey.[1] We are expressly told[2] that the ritual performed in honour of the Cretan Zeus set forth the miraculous preservation of the infant and his nourishment by Amaltheia and Melissa, personifying the goat and bee. However this may be, the Libation Table takes us back to a period when, as the concordant testimony of the early Cretan religious relics shows, the Mother-Goddess herself was the principal object of cult.

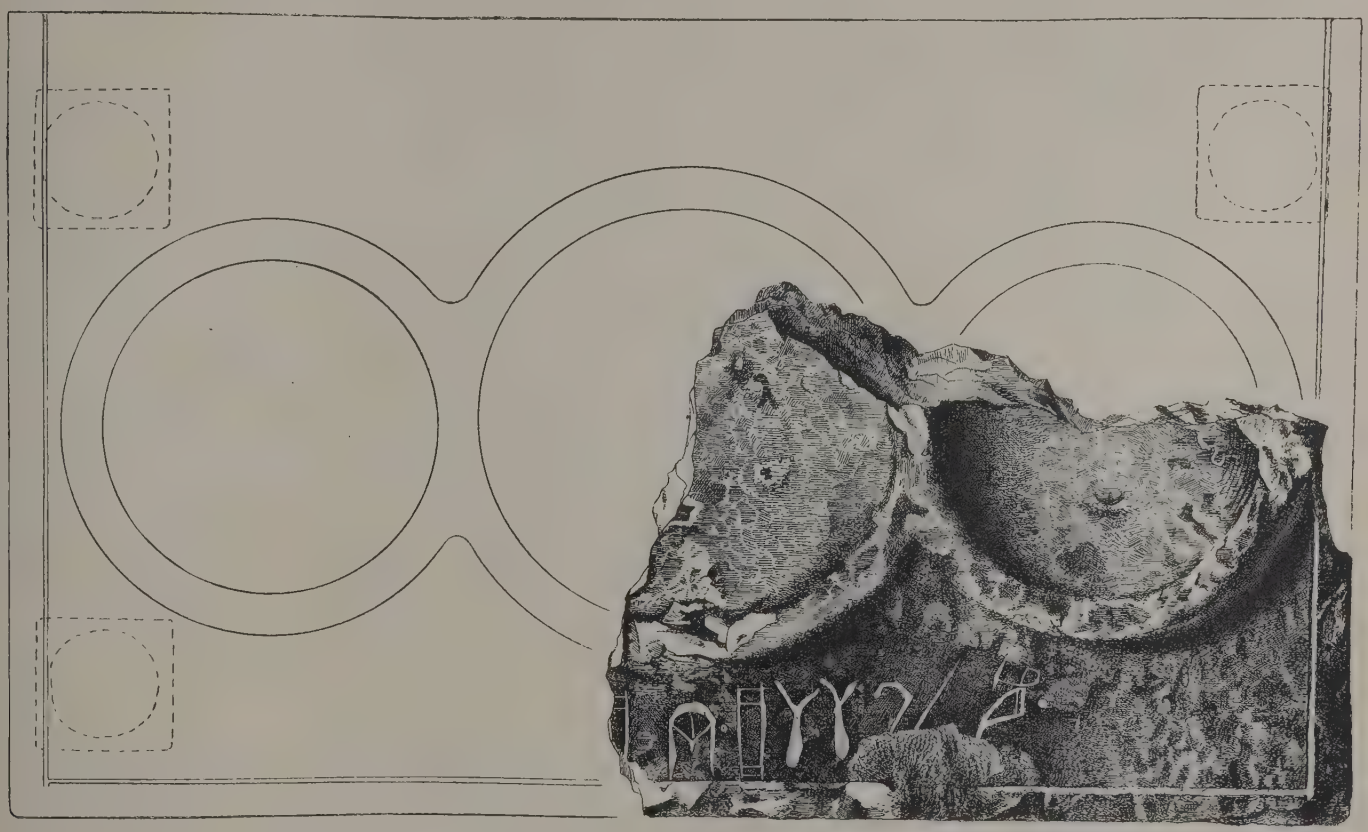


Fig. 8. Inscribed Libation Table from the Dictaean Cave. [½] (Upper face, restored in outline.)

Inscription on Table in advanced linear characters: of Class A.

But the most remarkable phenomenon presented by the remaining portion of the Dictaean Libation Table was part of an inscription incised along its upper surface in front of the cups (see Fig. 8). The inscription was in well-defined characters belonging, as will be shown below, to an advanced type of linear script (Class A), which at Knossos is confined to the middle period of the later Palace. It reads from left to right, and consists of eight or nine characters and two stops. If we may suppose it to have been symmetrically arranged, it would have originally consisted of about fifteen characters, and perhaps four words. We have here an inscription cut

[1] Diod. v. 70.

[2] Lactantius, *De falsa Religione*, 21, 22.

Probably a dedication.

on stone, and probably of a dedicatory nature, which in the strictest sense of the word may be described as monumental.

Destruction of antiquities during massacre at Candia in 1898.

The outbreak of the Insurrection in the summer of 1896 did not seriously interrupt the course of these investigations. Revisiting Crete in 1898 I was able to pursue my researches in the central and eastern parts of the island, then in Insurgent hands, and received the kindest assistance and support from the French and Italian Commanders in the districts then in their occupation. Unfortunately, however, in Candia and the adjoining districts, which had been committed to British protection, and where a large number of native Moslems were collected, the situation was very different. The policy was different, too. The complaisant attitude towards the Hamidian authorities to which it was considered necessary to resort was by no means felicitous in its results. My own guide and attendant was thrown into a noisome dungeon, from which he was with difficulty rescued. The inevitable massacre followed, directed, with every telegraphic facility, from the Palace at Yildiz[1]; and during the burning of the Christian Quarter a series of interesting relics from the site of Knossos,[2] including an inscribed fragment, to be described below, perished in the flames.

The exploration of Knossos facilitated by the new régime in Crete.

The advent of the new autonomous Government under Prince George of Greece, to whose friendly support I was much indebted, gave me the opportunity for which I had long been preparing of carrying out by the aid of the spade a more thorough investigation of the remains of the early civilization of the island at the spot to which all later tradition pointed as its head quarters. Knossos, the city of Minos, the legendary site of the Palace wrought for him, with all the artistic wonders it contained, by his craftsman Daedalos, of the Dancing-Place of Ariadne and of the Labyrinth itself, naturally stood out as the first objective. The indications secured during a first visit to this site had themselves been of such a nature as to leave no doubt of the supreme importance of the undertaking. Fragments of painted stucco, ceramic and other relics, a gold signet ring with a religious subject, a part of a steatite vessel with spirited reliefs had rewarded my first researches on the spot. My attention had been especially turned to the hill of Kephala, where remains of early walls and of a chamber with huge store jars together with other relics had already been brought to light by a native antiquary, Mr. Minos Kalochaerinos. Certain signs already noticed by Mr. W. J. Stillman[3] on some large blocks visible on the southern declivity of this hill might or might not be properly described as 'masons' marks', but they had all the appearance of belonging to a people acquainted with the art of writing. The probability that, over and above the general artistic and architectural results, excavation here might throw a new light on the Pre-Phoenician script of Crete was enhanced by more than one small find. Two seal-stones had come under my notice, picked up on or near the site by neighbour-

Preliminary indications.

The hill of Kephala: signs on ancient blocks.

[1] The evidence on this point was conclusive.

[2] Among the objects destroyed were those excavated on the Hill of Kephala by Mr. Minos Kalochaerinos. His son was also burnt alive. Other antiquities were in the possession of his brother, Mr. Lysimachos Kalochaerinos, British Vice-Consul. These were also burnt with his house and himself massacred.

[3] Published by him in the *Second Annual Report of the Executive Committee, Arch. Inst. of America*, 1880–1, pp. 47–9. Mr. Stillman's drawings were also reproduced in Perrot et Chipiez, *Grèce Primitive*, pp. 460, 462.

ing peasants, which bore groups of hieroglyphic signs.[1] In addition to this, however, there came subsequently to my notice a fragmentary indication the precise significance of which it was impossible at that time to appraise, but which opened out still greater possibilities. In 1895 I was shown a part of a burnt clay slip then in the possession of a Candiote, Kyrios Zachyrakis, said to have been found on the site of Kephala, presenting some incised linear signs which seemed to belong to an advanced system of writing. It had been apparently a surface find, and there was nothing by which to determine its age. The clay slip itself perished at the time of the destruction of the Christian Quarter, but I took a careful copy of it at the time.[2] The object itself, standing as it did entirely isolated, was still of such an uncertain nature that, when publishing some supplementary materials on the Cretan script in 1896, I preferred to place this inscribed fragment, the potential significance of which might be so far-reaching, to 'a reserve account'.

Enigmatic fragment.

On the Hill of Kephala therefore I resolved to dig. But, such were the local circumstances, that in order eventually to secure full freedom of action in the matter of excavation it was necessary to obtain the actual ownership of the property, which unfortunately, according to the system prevalent in Crete, was in the hands of co-proprietors, who were Moslem Beys of an exceptionally intractable disposition. Already in 1895 I was able to purchase a share in the property, but it was not till six years later, after encountering every kind of obstacle and intrigue, that I finally succeeded in purchasing the whole site. This was largely owing to the assistance of Dr. Joseph Hazzidakis, now Ephor-General of Antiquities and Director of the Museum at Candia, who amidst all the obstructions to which I had been subjected had constantly seconded my efforts. Difficulties remained of a political nature, but, thanks to the goodwill of Prince George of Greece, these, too, were successfully surmounted, and at last, in March, 1900, it was possible to begin operations. The results have been such as to surpass all expectations. Aided by the Cretan Exploration Fund then started, and ably seconded by my Assistant, Dr. Duncan Mackenzie, and by the former architect to the British School of Athens, Mr. Theodore Fyfe, I was able in the course of seven campaigns to lay bare a great prehistoric Palace and its dependencies. The 'House of Minos', the works of Daedalos, the Labyrinth itself, have been shown to be no mere creations of ancient fancy.

Excavation at Knossos.

The Palace of Minos.

On the general outcome of these excavations and the extraordinary degree of advancement exhibited by the Minoan civilization in various branches of art and of mechanical and sanitary science this is not the place to enlarge.[3] As regards the particular subject of investigation that is the scope of the present work the results were indeed decisive.

On March 30, 1900, the exploration of the area above the Southern Terrace brought to light the larger part of an elongated clay tablet with signs and numbers incised upon

Discovery of inscribed tablets.

[1] *Cretan Picts.*, Fig. 30, p. 24 [293] and Fig. 40, p. 30 [299]. See below, Pt. II, §§ 6, 7.

[2] See vol. ii of this work.

[3] Preliminary Reports have appeared in the *Annual o the British School at Athens*, vols. vi–x.

it, which I at once recognized as presenting the same form of linear script as that of the fragmentary clay slip seen in 1895. The work of the succeeding days produced a series of these from what proved afterwards to be the second West Magazine, and on April 5 there was found in a small chamber near the South Propylaeum a bath-shaped vessel of terracotta containing a whole hoard of inscribed tablets, several in a perfect condition, which referred to various cereals. The tablets were arranged in rows, and from the charred wood in which they were embedded, it seems probable that their immediate receptacle had been a wooden box. From this time onwards similar finds continued at intervals throughout the whole course of the excavations. The written documents from the Palace of Knossos and its immediate dependencies now amount to nearly two thousand.

Evidences of successive types of script in Knossian archives.

The overwhelming majority of these clay documents, including the first discovered, presented an advanced type of linear script—referred to in the present work as Class B—which was in vogue throughout the whole of the concluding period of the Palace history. But the course of the excavations brought out the fact that the use of this highly developed form of writing had been in turn preceded in the 'House of Minos' by two earlier types—one also presenting linear characters, described below as Class A, the other, still earlier, of conventionalized pictorial aspect, recalling Egyptian hieroglyphics. The archaeological stratification of the site reveals two distinct Palace eras, and, on the eastern slope, remains of a still earlier building. Beneath the most ancient remains of the Age of Palaces there came to light, moreover, layer after layer illustrating the stages of a still more primitive culture, from the earliest Neolithic times onwards. We are thus enabled to trace the whole evolution of the Art of Writing in a manner for which perhaps it is impossible to find an adequate parallel on any other ancient site. The consecutive phases of Minoan culture covered by the several stages in the history of the building are seen in each case to have been the gradual outgrowths of long generations of civilized life. We watch the rise, the bloom, and decadence of successive schools of art, and the fuller the volume of our detailed knowledge grows, the greater is the tale of years demanded to explain the phenomena before us. We shall not err on the side of exaggeration in estimating the period covered by the successive types of developed script on the Palace site at Knossos at over a thousand years. It must at the same time be observed that the latest of the Minoan documents discovered on this site, those namely dating from the period of decline, when the Palace as a Palace had ceased to exist, are older by several centuries than the earliest known records of Phoenician writing. The twelfth century before our era may be regarded as their latest limit.

Antiquity and duration of Art of Writing at Knossos.

I. § 3. THE HIEROGLYPHIC ARCHIVES OF KNOSSOS

Early 'Middle Minoan' Palace at Knossos.

Although the later Palace on the hill of Knossos, itself again and again remodelled, has largely obscured the earlier fabric, there is evidence, especially on the eastern slope, of a great building having existed here in what I have elsewhere ventured to call the First Middle Minoan Period. This period, from a variety of evidence, can be shown to be roughly contemporary with the beginnings of the Middle Kingdom in Egypt, and it represents the time during which the first and simpler phase of the polychrome ceramic decoration was produced that was to attain such a splendid development in the succeeding age. It is also to this period that we must ascribe the earliest traces of a developed form of script found on the Palace site. These consisted of two clay sealings with signet impressions, in each case showing a group of hieroglyphic or conventionalized pictographic characters of somewhat archaic aspect, and belonging to what is described below as Class A of that series. They were found on the floor of a basement chamber, the South-East Pillar Room, in a stratum of pottery characteristic of the First Middle Minoan Age.[1] Evidence will be given in a succeeding Section which tends to show that this period roughly corresponds with the Eleventh Dynasty of Egypt.

Evidences in it of hieroglyphic writing.

Seal impressions illustrating its earliest type (A).

FIG. 9.[2] Clay Sealing from South-East Pillar Room (3/1).

A more important find of clay archives and sealings in the most fully developed hieroglyphic style took place already during the first year's excavations in the West Wing of the Palace. This part of the building, though it cannot be reckoned among the earliest of the architectural remains, seems in its original plan to belong to the beginning of the Second Middle Minoan Age, the period when ceramic polychromy reaches its acme. The synchronism of this period with the Twelfth Egyptian Dynasty, of which many indications had already appeared, has been now fully established by the discovery[3] of the remains of a polychrome vessel illustrating the latest stage of the Second Middle Minoan style in an untouched tomb at Abydos containing, together with other rich Egyptian relics, glazed steatite cylinders with the names of Sesostris (Senusert) III and Amenemhat III.

Important deposit of clay archives in West Wing, in more advanced hieroglyphic style (type B).

Chronological indications.

The earliest contents of the West Wing of the Palace, as far as they are known, belong, however, to a period—the 'Third Middle Minoan'—when the fine polychrome style was already in a state of decadence, and must therefore be referred to a somewhat later date than that of these Egyptian kings.

Earliest period of West Wing mainly 'Middle Minoan III.'

[1] For the South-East Pillar Room see 'Knossos,' *Report*, 1902.

[2] Repeated in Pt. II, § 6.

[3] By Prof. J. Garstang. The Cretan vase and cylinders are now at Oxford (see A. J. E., *Ashmolean Museum Report*, 1907). The decorative features of the vase are also very closely allied to those of the early part of the succeeding Third Middle Minoan Period.

Hieroglyphic deposit belongs to this period.

Circumstances of discovery.

Immediately behind the landing of the stone steps at the north end of the Long Gallery was an elongated chamber which seems to have been intended for a magazine, but which had been shortly afterwards filled in and used as a platform. This earth filling has preserved a series of clay documents belonging to the first period of this part of the building, and presenting inscriptions in the same 'hieroglyphic' or conventionalized pictographic script as that of the more advanced specimens of seal-stones observed from 1893 onwards.[1] The clay documents were in the form of rectangular

Fig. 10. Clay 'labels' and bars with hieroglyphic inscriptions

Types of clay documents found.

tablets, short bars with three or four sides, scallop-shaped labels perforated for suspension (Fig. 10), and three-sided sealings with a hole running along their major axis for the string by which chests containing the clay archives themselves or other possessions had been originally secured. These sealings, in addition to the graffito inscription usually impressed on their larger faces, exhibited one or more impressions of contemporary signets with hieroglyphic characters. It was particularly interesting thus to find the formal, glyptic type of the script side by side with the more careless and linearized versions of the same signs when hand-written.

[1] 'Knossos,' *Report*, 1900, pp. 59-63. In my original account of the discovery I failed to place these 'hieroglyphic' archives in their true chronological position. I recognized, indeed, the fact that the conventionalized pictographic or hieroglyphic script here represented was 'typologically earlier' than the linear script. But I was inclined to regard the graffiti and sealings as due to the Eteocretan element in the East of the Island having preserved a more primitive type of writing to a time when the lords of Knossos used the more advanced system. The stratigraphic evidence that came out later showed that there was no warrant for this view. I had been misled by certain details in the decorative elements of the early prism-seals which had induced me to bring them into direct relation with later 'Mycenaean' art. I had also been led to suppose that these 'hieroglyphic' seal-stones were more exclusively confined to the easternmost district of Crete than was really the case.

Business documents.

The inscriptions on these documents conclusively disproved a suggestion made with reference to the sign groups on the gems, that they had merely a 'symbolized religious sense',[1] since the very form of these clay records and the numerical entries contained in them show that they had been employed for business purposes. The pictorial and ideographic character of many of the signs in fact enables us to detect references to the most varied possessions. A clay bar and 'label' are shown in Fig. 10, but, as a detailed description of these hieroglyphic documents is contained in Part III of the present volume, a somewhat brief reference to their character and contents may here suffice.

Hieroglyphic tablet from Palace of Phaestos and primitive example in Berlin Museum.

A tablet in the same hieroglyphic script was found in the Palace of Phaestos by the Italian Mission in 1901.[2] A perfect clay bar of the same general class as some of those from the Knossian deposit, but presenting characters of an exceptionally primitive type, had been acquired some time since by the Berlin Museum. It had, however, been put away among Gnostic and magical relics till, in view of the Cretan discoveries, its true associations were recognized by the Director of the Antiquarium, Dr. Zahn, who has kindly allowed me to include it in the present work.[3]

Third Middle Minoan Period at Knossos.

The first stage represented by the existing West Wing of the Knossian Palace goes far back into the Second Middle Minoan Age—the age *par excellence* of ceramic polychromy—but its contents seem almost exclusively to belong to the ensuing period. This period, the Third Middle Minoan, if we may judge from the large deposits by which it is represented—notably the contents of a walled circular area recently discovered beneath the later West Court pavement[4]—appears to have been of long duration. Probably the greater part of the more advanced class (B) of engraved signets, and the bulk of the hieroglyphic archives found in the Palace, come within the limits of this Third Middle Minoan Age. As a matter of fact, side by side with sealings from that deposit presenting hieroglyphic signs, there occurred seal impressions of a purely pictorial kind illustrating the naturalistic style that characterizes this period.

Two examples of such sealings from this deposit are given in Fig. 11, *a* and *b*. In one case (*a*) there appears side by side with a signet impression showing three hieroglyphic signs, the impression of an oval intaglio with an animated scene of a dog chasing a Cretan wild goat. On (*b*), which has evidently been impressed with a lentoid bead-

[1] R. Zahn, *Arch. Anzeiger*, 1901, p. 23, '... die Zeichen auf den Siegelsteinen haben einen religiösen symbolischen Sinn. Es folgt daraus, dass wir es nicht mit einer Bilderschrift in dem Sinne zu thun haben wie Evans will, mit einer Schrift, in der beliebige Worte und Sätze durch die Nebeneinandersetzung der Bildzeichen ausgedrückt sind. Vielmehr haben wir auf den kretischen Steinen in andeutenden, dem Eingeweihten verständlichen Zeichen den kultlichen Inhalt ausgedrückt, den uns die mykenischen Goldringe im Bilde zeigen.' That religious signs should be frequent, especially on signets, is itself only what we should expect according to Egyptian analogy. Many of these are, doubtless, the equivalent of Egyptian cartouches presenting the names or titles of kings or officials into which religious elements would probably enter. Religious formulae of a talismanic nature may also have been engraved on these as on modern Oriental seals. But, as shown in detail below, we have to do with a definite form of script.

[2] L. Pernier, 'Scavi della Missione Italiana a Phaestos,' 1900–1 (*Mon. Ant.* xii. 1902), Pl. VIII, Fig. 2, and pp. 96, 97. F. Halbherr, 'Resti dell' età Micenea, etc., Rapporto sulle ricerche di 1902' (*Mon. Ant.*, vol. xiii. 1903), p. 26, Fig. 11. See below, Part II, § 8, P. 121. Unfortunately the tablet had at first escaped detection, and its exact find-spot is consequently unknown.

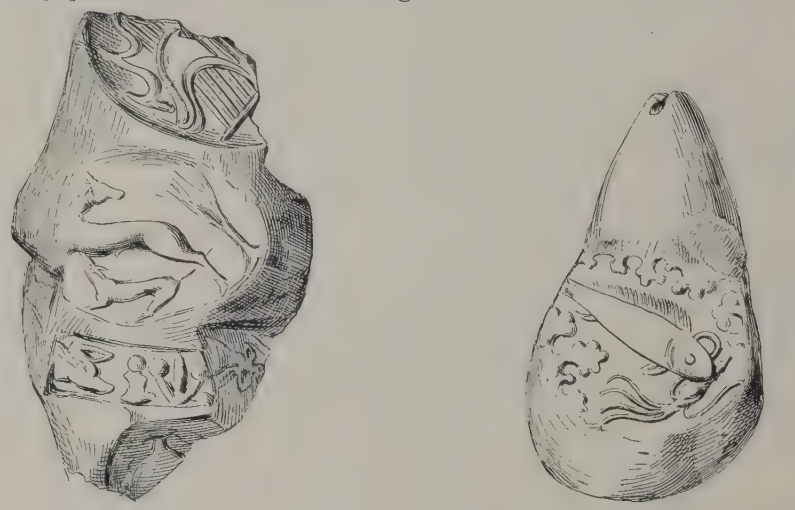
[3] See below, Part II, § 8, P. 122.

[4] See my letter to the *Times* ('Further Discoveries in the Palace of Knossos'), July 15, 1907.

seal, we see a beautiful delineation of a fish and sepia in a rock-girt pool. Nothing can exceed the exquisite naturalism of this design.

Its close marked by extensive catastrophe in Palace.

The close of this Third Middle Minoan Period was marked at Knossos by a widespread catastrophe in the Palace and its dependencies, followed, perhaps after a certain interval, by a great restoration and partial remodelling of the building. Either owing to the effects of the catastrophe or to the subsequent structural changes, certain chambers and repositories belonging to the original structure were now filled in or covered over, in many cases containing relics belonging to the last days of the Palace in its original form. The progress of the excavations thus brought to light in various parts of the site a series of contemporary deposits of this character which were clearly separated off from the overlying remains of the building as remodelled during the early part of the Late Minoan Age.



a *b*

Fig. 11. Clay Sealings with impressions of Minoan Gems (⅔).

I. § 4. THE HIEROGLYPHIC DISK FROM PHAESTOS

Hieroglyphic Disk from Phaestos.

It has already been noticed in the preceding Section that a clay tablet with a hieroglyphic inscription of the same class as those of Knossos was discovered in the Palace of Phaestos. While this work was in the press, in July 1908, Dr. Pernier of the Italian Mission, in the course of supplementary excavations beneath some Hellenic constructions at the north-eastern extremity of the Phaestian acropolis, brought to light a chamber in which, amongst various objects, illustrating the concluding phase of the Middle Minoan Period,[1] was a clay disk covered on both sides with a hieroglyphic inscription larger than any yet discovered.

A detailed account of this must be reserved for the concluding part of the present volume. Thanks, however, to the kindness of Dr. Pernier, who has placed at my

[1] I am indebted to Professor Halbherr for this piece of information.

disposal excellent photographs of both sides of the Disk, I am able to give in this place [1] a summary account of this remarkable object, together with impressions derived from a preliminary study.

Fig. 11 *a*. The Phaestos Disk. Face A.

The Disk itself (see Plates XII, XIII) is 17 centimetres (6·67 in.) in diameter and is completely covered on both sides with an inscription, which in each case coils round

[1] By the time that this sees the light Dr. Pernier's account of the Disk will have appeared in the forthcoming number of *Ausonia*. In the fuller account of the object reserved for the concluding part of this volume I hope to have the advantage of consulting Dr. Pernier's work. In the meanwhile the summary conclusions here given as to the character of the script on the Disk have such value as results from a perfectly independent investigation.

Hieroglyphs stamped on Phaestos Disk.

from the centre outwards. It is by far the largest hieroglyphic inscription yet discovered in Crete. It contains some 241 signs and 61 sign-groups, and it exhibits the remarkable peculiarity that every sign has been separately impressed on the clay while in a soft state by a stamp or punch. It is in fact a printed inscription.[1]

Compared with Minoan.

It will be seen from the representation of face A of the Disk, given in Fig. 11 *a*, that the signs are arranged in groups between curving lines and separated from one another by upright lines as in the case of some of the tablets from Knossos. That there is a general parallelism in appearance between the signs on the Disk and those on the Cretan seal-stones is evident. So too they divide themselves into much the same categories, such as human and animal figures or their parts, arms and implements, domestic utensils and vegetable signs. But when we come to compare the figures in

Fig. 11 *b*. Selected Signs from Phaestos Disk.

Great discrepancy observable

detail with those of the Minoan hieroglyphic signary a very great discrepancy is observable. Out of the forty-five separate signs on the Phaestos Disk not more than ten—a woman's breast, a one-handled spout and vase, an arrow, a carpenter's angle, a Δ-shaped figure, the head apparently of a dog, a fish, a standing bird, the double 'olive spray', and perhaps an ox's hoof—more or less resemble Cretan hieroglyphic forms. Even in this short list there are appreciable differences; thus we have one female breast given instead of two, the feather of the arrow, here clearly outlined, is generally absent in the Cretan hieroglyph, while the barbs, there visible, are here wanting; the Δ has dots in its interior; the tail of the bird curves down. About four-fifths of the signs on the Phaestos Disk are new and independent forms.

But an examination of some of the most characteristic figures, as grouped together in Fig. 11 *b*, brings out this contrast into still sharper relief.

[1] Professor Pernier informs me that the whole Disk should possibly be regarded as a 'matrix' or stamp.

The human figures in their outline and costume are non-Minoan. We miss the pinched-in waist, and the female figure (*g*) especially is marked by an extraordinary breadth of body. The belt and short tunic of the man (*e*) approaches indeed certain types of the Minoan habit, and is at any rate distinctively non-Semitic, but the head (*d*), which has all the appearance of being bald and covered by a close-fitting cap, and (*c*), with the crest attached to it, take us in another ethnic direction. The close-fitting cap occurs as a part of the Hittite costume, though usually with a horn-like tuft above.[1] But the close-fitting cap equipped with a regular crest has no true Hittite analogies. It at once recalls the familiar headgear of the Viking swarms from the North and the 'Great Green Sea', who ravaged the Delta from the later part of the Eighteenth to the Twenty-first Dynasty, and appear in the Egyptian records under the names of the Tsakkara, Dananas, and others, and notably the Pulasati or the Philistines. It is also seen in the case of an armed man on the more or less contemporary 'Cypro-Mycenaean' ivory reliefs of the casket from Enkomi, while another relief on an ivory mirror-handle from the same cemetery shows a warrior with a round shield. Outside Cyprus, at least, the round shield (*j*) is also unknown in the Minoan cycle of remains, but it is characteristic of this same group of seafaring peoples, and the belt and short tunic is their usual attire (Fig. 11 *c*).[2]

Comparison of male figures with later Pulasati, &c.

Fig. 11 *c*. The Northern Invaders of Egypt under Merenptah.

Still more divergent from all known examples of Minoan dress is that of the woman (*g*). It differs not only in its general broad outline, already noticed, but in almost every detail. It neither answers to the earliest fashions, illustrated respectively by the figurines of Petsofà and the Snake Goddess and her votaries, nor to the later modes of the Court Ladies of Knossos, as seen in the miniature frescoes, nor to those of the ordinary 'Mycenaean' class. It is true that, as with these, the breasts have the appearance of being bare. But the short jacket, bodice, tightly drawn zone, apron, flounces, divided skirt, all the characteristic features are here absent, and we see instead a quite unfamiliar arrangement. The dressing of the hair again, which seems to be drawn back to a kind of point behind, has nothing to do with the Minoan, early or late. The general outline of the head and hair, however, recalls that of some of the male Shardana heads[3] belonging to the same group of maritime confederates as the Pulasati and others.

Woman's dress different from Minoan.

The representation of the ship (*a*) also differs from all similar designs that occur either among the hieroglyphic or the linear documents of Crete. In the case of the

[1] It is seen occasionally, however, without this. Cf. W. Max Müller, *Asien und Europa*, p. 326 (from Rosellini, 89).

[2] Rosellini, *Mon. dell' Egitto e della Nubia*, Pl. 128.

[3] Cf. W. Max Müller, *op. cit.* p. 380.

Peculiar Ship on Phaestos Disk.

Minoan hieroglyphs we see a vessel with oars and a central mast with ropes attached. On some of the linear tablets of Class B this is abbreviated into a half ship, but also showing the mast. Here we have neither mast nor oars;[1] on the other hand we have what seems to be an arrow pointed forwards across the prow. If we may regard the figure as an ideograph, it seems to be of a compound kind, possibly to be compared with the 'Nome' signs on primitive Nilotic barks. The slave or captive (*h*) with his arms bound behind his back suggests the results of some armed enterprise.

It must be observed that the ships of the Confederate invaders of the Delta from the close of the Eighteenth Dynasty onwards so far agree with the Minoan type that they always show a central mast. The present vessel in some respects resembles certain primitive canoes, of which miniature models in lead have been found in a tomb at Amorgos, the date of which roughly corresponds with the beginning of the Middle Minoan Period in Crete. The beak, however, is here a much more prominent feature.

The natural inference which the absence of sails might suggest is that the people to which this record belongs came from very near Phaestos itself. The early remains of Western Crete are still so superficially known that many surprises may be yet in store for us from that side. But it may be reasonably asked, Was there room within the limits of the island for a parallel form of culture so distinct from the Minoan as that revealed to us by some of the most characteristic among the picture-signs upon the Disk? Or, again, could there have been two separate hieroglyphic systems at such close quarters with one another? That the ordinary Minoan system was in use in Phaestos itself is shown from the hieroglyphic tablet found in the Palace.

But the most remarkable of all the signs on the Disk is the architectural figure *b*. The first impression produced by this design might possibly be that it is intended to represent a circular-domed building with a projecting platform. But the more probable explanation is that we have here the face of a rectangular building with a hull-shaped roof—a view which receives some confirmation from the fact that the two interior supports of the apex do not converge upwards towards the point of the roof, as if radiating from it, as they would do in a circular building, but seem to support the curving sides of a gable. But, if we have here an oblong building with a carinated hull-shaped roof, it is obvious that the scheme closely approaches the traditional architectural type preserved by the tombs and rock carvings of Lycia. The framework of the structure was necessarily of wood, and the projecting eaves and platform certainly recall the typical features presented, for example, by the well-known façade of the rock-tomb at Myra,[2] or certain prominent buildings, probably also tombs, rising above the town walls on the Pinara reliefs.[3] It is natural that the sepulchral art of classical Lycia should have preserved the domestic architecture of a more remote period.

Pagoda-like building.

Its Lycian parallels.

[1] The meaning of the knob visible in the fore-part of the vessel is not clear.

[2] Texier, *Description*, &c., T. III, Pl. ccxxvii, Fig. 2. Perrot, *L'Art*, &c., V, p. 377, Fig. 264. It may be noticed as a curious correspondence in detail that the upturned end of the lower projecting beam of the building on the Disk is turned up like that of the Myra tomb.

[3] Benndorf, *Reisen*, I, Fig. 36; Perrot, *op. cit.*, p. 368, Fig. 252.

These comparisons of course are only of a general kind. The projecting platform or verandah takes us indeed still further East, and suggests comparisons with the pagoda. But in any case the form here represented does not answer to the Minoan façades so far as we know them from the architectural scenes of the wall-paintings and intaglios.

Phaestos Disk reveals a high civilization parallel with Minoan.

What are we to conclude? The general character of the hieroglyphic script presents, in any case, a close parallel with the Minoan, and a certain proportion of the signs are identical. The sign reproduced under *i*, moreover, though it does not occur on the Minoan series, may be taken to indicate some community in the domain of sport. It seems to represent a fist wound round with a thong, in other words a cestus, which was also known to the Minoan prize-ring. But the independent elements exhibited are so numerous that we are almost constrained to look outside the limits of Crete itself for the centre of this rival culture. Have we here the record of an invading swarm, the destroyers perhaps of Phaestos itself? The ship with the arrow on the prow, the captive, the prominence of the helmeted head and shield in the sign-groups, certainly give the idea of a successful maritime descent. The constantly recurring flying eagle with a serpent in his claws (*l*) was itself in the classical art of Greece an emblem of victory. But, notwithstanding these features, a careful analysis of the hieroglyphic signs here depicted is sufficient to show that we have not to deal with a mere piratic swarm. The Disk itself with its artistically executed imprinted type is itself a sufficient evidence that those whose record it preserves had attained a high degree of civilization. The signs themselves bespeak varied industries. We see an elegant spouted vase, carpenters' tools, a pickaxe, parts of domestic animals, fruit trees and other plants. The slave (*h*) may himself, as much as the constantly recurring hides, be regarded as an article of commerce; and the warlike enterprise by which such human merchandise was procured may well have been exercised at the expense of some more distant population. In Part III, below, attention will also be called to some indications of a religious element in the inscription.

Signs of peaceful industry.

The Disk perhaps a record of industrial connexion with Lycia.

According to this view the Disk should rather be regarded as a record of a peaceful connexion between the Minoan lords of Phaestos and some neighbouring race enjoying a parallel form of civilization than as an evidence of hostile occupation. As to the direction in which this race is to be sought, the indications at our disposal may be thought to point to the Western coastlands of Asia Minor. The ethnic relationship between the old Cretan stock and the original Carian population of that region enhances this probability. The most typical features with which we have to deal moreover in the dress and armour closely agree with those of the seafaring peoples who at a somewhat later date are found descending on the Delta. It is a generally accepted conclusion that some of these confederate swarms hailed from the opposite coasts of Anatolia, and in view of the Lycian comparisons above instituted, it is worth while recalling that among the earliest of these were the Luku or Lukki, of whom the king of Egypt already makes complaint to the king of Alashiya, or Cyprus, in one of the Tell el-Amarna letters.[1]

[1] Letter XXVI: see Petrie, *Hist. of Egypt during the Seventeenth and Eighteenth Dynasties*, p. 273. For these

Approximate date of Phaestos Disk not later than 1600 B.C.

At the same time we are warranted in believing that the Phaestos Disk belongs to an earlier date than any of the descents recorded by the Egyptian monuments. According to the evidence supplied by the Italian explorers, the associations in which the Disk was found tend to the conclusion that it belongs to the close of the Third Middle Minoan Period. On the other hand, there came to light in the same chamber the greater part of a clay tablet inscribed on both sides with the ordinary Minoan linear script of Class A. It belongs to a time therefore when this linear form of script had succeeded the hieroglyphic class in Crete itself. Still, so far as the general chronological evidence goes, it would not be safe to place the latest elements in the deposit in which the Disk was found below the approximate date of 1600 B.C.

Earlier than the Egyptian records of maritime descents on Delta.

That the Phaestos Disk should be regarded as a monument of peaceful intercourse rather than of hostile descent is at least a possible explanation. Yet there is an ominous side none the less to the appearance within the walls of Phaestos of a record of this maritime race, eventually, perhaps, to become the leading member of the Confederacy which was to carry fire and sword into the Delta. That Phaestos itself suffered a great overthrow not long after the time when the Disk was deposited is clear.[1] But the brilliant days of the later Palace at Knossos were yet to run their course. The time had not yet come for a permanent settlement in Minoan Crete of invaders from whatever quarter. It is nevertheless a significant fact that among the group of seafaring peoples with which so many characteristic features of the Disk connect themselves, appear at later date the Akaiuasha of the Egyptian monuments, reasonably identified with the Achaeans. Coming events cast their shadows before them. In the remarkable document before us we seem to have a record of the most civilized representative—not improbably the organizer—of the maritime league whose prowess is illustrated by the Egyptian monuments of the ensuing age. This new naval Confederacy was destined to outstrip the Minoan sea power, and it was in its wake that the migratory Achaean swarms got a firm hold on Cretan soil.

I. § 5. THE LINEAR SCRIPT OF CLASS A

Discovery of clay documents with advanced linear script (Class A).

An important result of the catastrophe which closed the Middle Minoan phase of the building at Knossos was to supply the earliest landmark of a new and more advanced method of writing. In several of the deposits which owed their final closing to the overthrow in question there occurred, together with other relics illustrating the most advanced phase of the Third Middle Minoan style, tablets and other inscribed objects, presenting a form of linear script (described below as Class A) which differed from that of the extensive hoards of Class B belonging to the last Palace Period. The most remarkable of these deposits was discovered in a large

people cf. W. Max Müller, *Asien und Europa*, 354 seqq., who identifies them with the Lycians, and also H. R. Hall, *Annual of B. School of Athens*, VIII, pp. 176, 177.

[1] The graffiti on the jars contained in the later Magazines of Phaestos show that the linear script of Class A was still in use when the Palace was destroyed. There is a gap on the site between L. M. I and L. M. III when it was again partially occupied.

stone cist or repository lying beneath a later pavement. This contained the fittings of a small Palace Shrine, including a marble cross of orthodox Greek shape, and exquisite vases, reliefs, and figures in native faience, among which were the Goddess with the snakes and her votaries.[1] Here, together with a variety of sealings showing the highest development of naturalistic art in gem engraving, was a rectangular clay tablet, and disks and labels engraved with linear characters of this class.[2] An early magazine to the South-West, which lay beneath another later floor,[3] produced a characteristic pot with an inscription of the same style,[4] while a still more interesting find

Examples in Temple Repositories.

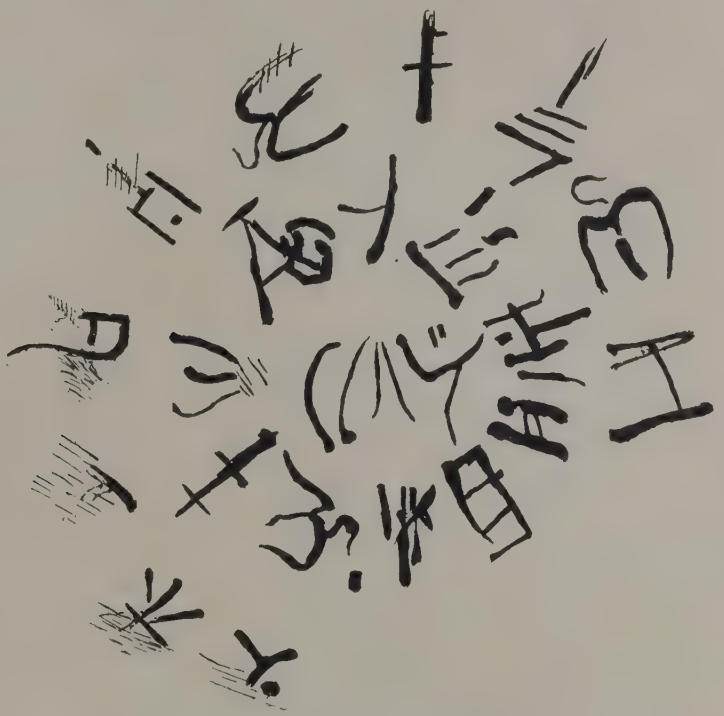


Fig. 12. Ink-written Inscription inside Cup.

took place in the South-East part of the site. Here, immediately above the Pillar Chamber belonging to the early part of the Middle Minoan Age, in which, as already noticed, hieroglyphic sealings had occurred, was a floor-level, upon which were found several characteristic vessels of the Third Middle Minoan class. Among these were two cups exhibiting round their inner surface ink-written inscriptions of this same linear class.[5] These inscriptions, one of which is here reproduced in Fig. 12, were apparently executed by a reed pen before the final firing of the clay.

Cups with ink-written inscriptions.

It may be said that wherever there was any distinct stratification observable the

[1] 'Knossos,' *Report*, 1903, pp. 38 seqq.

[2] Ibid., p. 52.

[3] 'Knossos,' *Report*, 1901, pp. 9–12. But the stratigraphic conditions of this discovery were not rightly appreciated when this preliminary account was written.

[4] Ibid., p. 10.

[5] 'Knossos,' *Report*, 1902, pp. 107 seqq.

This class occurs in stratum marking close of M. M. III.

linear inscriptions of Class A found at Knossos occurred under circumstances which connect them with the latest phase of the Third Middle Minoan style, and with the last elements of the existing Palace as originally constructed. An interesting discovery, moreover, made in this connexion has supplied what may ultimately prove to be an approximate guide to the date at which these documents first make their appearance. In a deposit belonging to the particular stratum that marks this widespread catastrophe of the building was found the lid of an *alabastron*, remarkably fresh in appearance, engraved with the cartouche of the Hyksos King Khyan.[1] It is now fairly ascertained that Khyan, whose monuments indicate that he ruled over Syria and Egypt from the Middle Euphrates[2] to Gebelen on the borders of Nubia, was one of the earliest group of the Hyksos Princes.[3] His continued use of the cylinder seal,[4] as well as his royal style and the decorative scrolls on his scarabs,[5] corroborate this conclusion, since they belong typologically to the earliest Hyksos class.

Lid of *alabastron* with name of King Khyan.

Question as to date of Khyan.

Unfortunately Egyptologists are at present too hopelessly divided as to the chronology of the Hyksos period to admit of any exact conclusion being drawn as to the date of Khyan. Certain synchronisms that it is now possible to establish between successive phases of Cretan culture and the remains of Dynastic Egypt help us indeed to a relative chronology. Thus, on the one hand, as already mentioned, we know from the Abydos find that the period of co-regency of Sesostris (Senusert) III and of his son Amenemhat III corresponds with an advanced stage of the polychrome ceramic style characteristic of the close of the Second Middle Minoan Period. On the other hand we have irrefragable evidence that the acme of the later Palace style of art —Late Minoan II—is represented by the offerings of the Keftian chiefs as seen on Egyptian monuments, such as the tombs of Senmut and Rekhmara, dating from about the middle of the fifteenth century B.C. From this it may be inferred that the beginnings of this middle stage of Late Minoan art, marked by the Knossian 'Palace Style' *par excellence*, go back to at least 1450 B.C.

Date of deposit midway between Twelfth and Eighteenth Dynasties.

But the well-marked Palace stratum in which the Khyan lid occurred lies on the exact confines of the Middle and Late Minoan Periods. It is separated from the fine age of ceramic polychromy, the close of which corresponds with the reign of Sesostris III, by the transitional period, to which we have given the name of Middle Minoan III. It is also separated from the age marked by the culmination of the later Palace Style,

[1] 'Knossos,' *Report*, 1901, pp. 64 seqq., and 'The Palace of Knossos in its Egyptian Relations' (*Eg. Expl. F. Arch. Report*, 1900–01, p. 37).

[2] The stone lion weight inscribed with Khyan's name found at Baghdad probably found its way there, as W. Max Müller has suggested, by water transport from the neighbourhood of Carchemish on the Middle Euphrates.

[3] The name has been identified by Von Bissing with the CTAAN of Manetho, which might easily be a corruption of C·I·AAN. Khyan would become Siaan in Greek in the same way as Khufa becomes Souphis (Petrie, *Hyksos and Israelite Cities*, p. 69). The identification with Manetho's IANNAC still finds adherents, however, e.g. Breasted, *History of Egypt*, p. 221. IANNAC and C·I·AAN do not appear in the same lists, and it is a fair conjecture that both names refer to Khyan (E. Meyer, *Aeg. Chronologie*, p. 85).

[4] Three of these are given by Newberry, *Scarabs*, Pl. VII, 7 and 10, and p. 47, Fig. 23. No other cylinders with the names of Hyksos kings seem to be known.

[5] See Petrie's comparative table of the Hyksos scarab types, *Hyksos and Israelite Cities*, Pl. LI. The evidence is even stronger than is there indicated, since the scroll pattern as an early characteristic occurs on additional examples (cf. Newberry, op. cit., Pl. XXII, 24, 25 (Type B), and 26).

which synchronizes with the Age of Thothmes III, by an intervening period—the First Late Minoan.

Approximate epoch according to Sothis dating.

If, then, we knew the date of the close of Sesostris III's reign, we might take a middle term between that and 1450 B.C. as a working chronological basis for the date of the deposit containing the apparently recent record of King Khyan. According to the chronological system based on the Sothis cycle the death of Sesostris III took place within three years of 1850 B.C.[1]

The interval between 1850 and 1450 B.C. amounts to 400 years. Halving this, and allowing a century and three-quarters each to the Third Middle Minoan Period and the earlier phase of the Late Minoan style, we arrive at the approximate date of 1650 B.C. for the deposit caused by the widespread catastrophe that marks the close of the Middle Minoan Age on the Palace site at Knossos. If, however, as seems probable from the remains, we should allow somewhat more for the first of these two periods, the date of this overthrow might well be brought down to 1600 B.C. The Hyksos conquest of Egypt would then have taken place and Khyan himself have begun to reign a little before this date.

The alternative hypothesis, which by carrying the Twelfth Dynasty back to another Sothis cycle would add 1,460 years to the interval between Sesostris III and the Eighteenth Dynasty, and thus put at our disposal no less than 930 years for each of the two Minoan Periods in question, does not seem to be warranted by the Cretan evidence.

The approximate date of 1600 B.C. above arrived at for the close of the Middle Minoan Age at any rate agrees very fairly with the most recent conclusions of Dr. Eduard Meyer as to the date of the Hyksos conquest of Egypt.

The 'Era of Tanis' (Zoan) and the Hyksos conquest of Egypt.

It is well known that the worship of Set was the special concomitant of Hyksos dominion, and the 'Era of Tanis', the biblical Zoan, which is bound up with this cult, may be reasonably supposed to date from the commencement of the Hyksos rule. The Stela of Tanis erected during the reign of Rameses II, which records the 400th year of this Temple Era, seems to supply a date for the beginning of the Hyksos dominion at Tanis. If, then, we may take the middle of Rameses II's long reign of sixty-six years as the approximate date of the erection of the Stela, this Hyksos Era would begin within thirty-three years either way of 1670 B.C.[2]

Other Cretan finds of this linear class (A).

It is noteworthy that at Knossos the inscribed documents belonging to the Linear Class A only occur in this particular stratum representing the lowest limit of the Middle Minoan culture. In deposits clearly belonging to the remodelled building the inscribed documents all belonged to Class B. Finds made elsewhere in Crete, however, seem to point to a longer local survival of this type of script. The small

[1] Eduard Meyer, *Aegyptische Chronologie*, pp. 51 seqq.

[2] E. Meyer, *Nachträge zur Aegyptischen Chronologie*, *Abhandlungen d. k. Pr. Akad. der Wissensch.* 1907 (Berlin, 1908, pp. 34, 35; cf. *Aeg. Chronologie*, pp. 65 seqq.). Dr. Meyer further shows that the two last kings of the Thirteenth Dynasty were vassals of the Hyksos and took the title 'beloved of Seth'. According to his chronological system as applied to the Thirteenth Dynasty kings, this would show that the Hyksos conquests had begun by 1680–1670 B.C. It is interesting to note that the 'Era of Tanis' was also used by the Hebrews. According to Numbers xiii. 22 'Hebron was built seven years before Zoan (Tanis) in Egypt'.

Clay documents and artistic products of Royal Villa at Hagia Triada.

Palace or Royal Villa excavated by the Italian Mission at Hagia Triada near Phaestos, together with a contiguous house which seems to have been an official residence (Fig. 13), has proved richer in this particular class of inscription than the Palace of Knossos.[1] In this building the phase of Cretan civilization best represented is that which completes the transition from what I have called the Third Middle Minoan style to the earliest phase of the Late Minoan. It covers a time during which there seems to have been a partial lacuna in the Palace at Knossos, following on a considerable catastrophe.

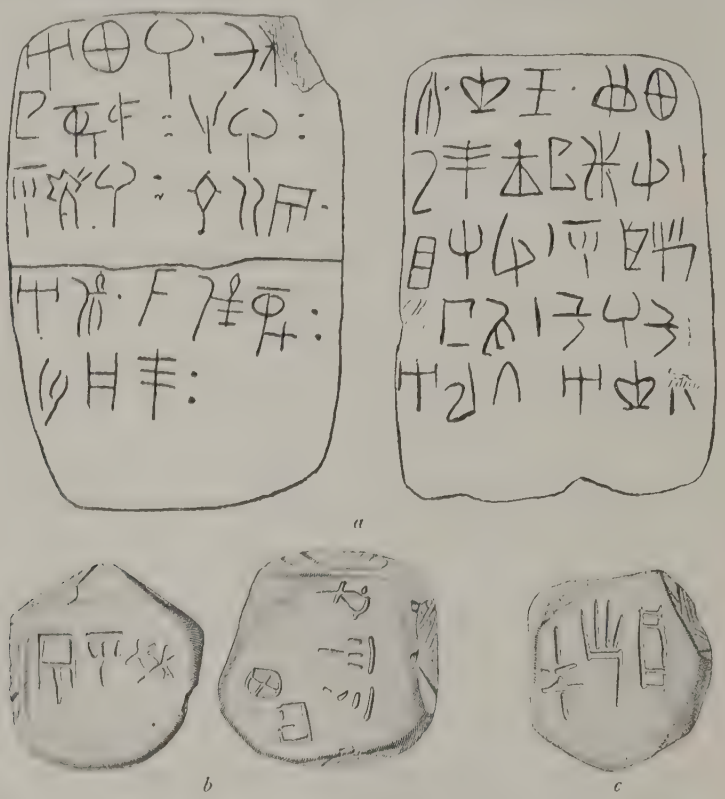


Fig. 13. Inscribed Tablets and Disks, Hagia Triada (*b* and *c* enlarged two diams.).

What traces, moreover, may have there existed of the First Late Minoan Age were largely obscured owing to the continued habitation of the building during the brilliant period—Late Minoan II—that immediately preceded its destruction. At Hagia Triada, on the other hand, there are marks of a great catastrophe having taken place at a date when the earliest phase of Late Minoan art, with all the beautiful naturalism inherited from the close of the preceding age, was still at its prime. The deposits of clay tablets, disks, sealings, and 'tesserae' here found inscribed with linear

[1] See F. Halbherr, 'Resti dell' età Micenea scoperti a Haghia Triada presso Phaestos' (*Mon. Ant.* xiii. 1903), pp. 21 seqq. Id. 'Lavori eseguiti dalla Missione archeologica italiana in Creta' (*Rendiconti della r. Acad. dei Lincei*, 1906, pp. 389 seqq.). The tablets of Fig. 13 are from 'Lavori eseguiti', &c., p. 28. The clay disks and sealings of Figs. 13, 14 are from *Mon. Ant.* xiii, pp. 27, 28, 30.

characters of Class A were contemporary with such exquisite artistic works as the wall-painting of the cat stalking a pheasant amongst the ivy-covered rocks, or the reliefs on the steatite vessels showing the harvest-home rout, the feats of the wild bull hunt, the contests of the arena, and the admirable scene of the youthful Minoan chieftain and his warriors. Many of the gem impressions or sealings from these deposits exhibit the same high level of art.

Thanks to the courtesy of Professor Halbherr, who directed the Italian Mission, I have been enabled to make a careful study of the Hagia Triada inscriptions, and to include a number of illustrative materials in the present work. The bulk of these will be contained in the second volume, and the tablets reproduced in Figs. 13, 14 must here suffice to give a general idea of the prevailing type of the clay documents belonging to this class. It will be seen that, besides the tablets proper, there are clay disks and sealings and 'tesserae' with only a single graffito character, whole hoards of the latter class having come to light.

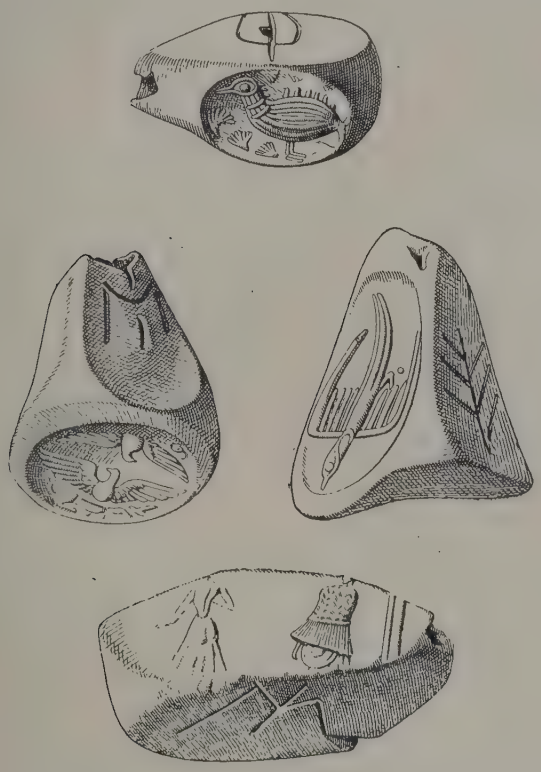


Fig. 14. Inscribed Sealings, Hagia Triada ($\frac{2}{1}$).

It is noteworthy that several of the large *pithoi*, or store jars, found in the Palace of Phaestos bear incised inscriptions in this same early variety of the advanced linear script. It is evident that the final catastrophe of this Palace took place at a time when this graphic style was still prevalent.

Deposit of Zakro.

Thanks to the kindness of other excavators I have been able to add the evidence of several more isolated finds of similar inscriptions belonging to Class A. In the settlement at Zakro Mr. Hogarth found an inscribed disk and tablet of this class. They were here associated with gem impressions in a very fine and fancy-free style of art characterized by a succession of fantastic creations—minotaurs and winged man-goats, eagle-women, and monsters with butterfly wings (Fig. 15). Here too were beautiful painted vases exhibiting lilies and anemones, and other relics illustrative of the same phase of artistic development as that to which the remains at Hagia Triada and the Temple Repositories at Knossos belong. It was noteworthy, moreover, as a further transitional trait that in this case there occurred among the sealings two impressions of 'hieroglyphic' signets executed at a somewhat earlier date.

Tablet of Palaikastro.

At Palaikastro, again, during the excavations carried out by Prof. Bosanquet for the British School in 1903, a tablet with an inscription of the same linear class was found on the floor of a house-

Of Gournia.

magazine in a layer immediately below one containing vases of the Zakro types, and which therefore belonged to a very early part of this transitional period.[1] An inscribed discoid tablet was also found by Miss Boyd (now Mrs. Hawes), in a deposit of the same period found in a private house at Gournia,[2] which answers both in its form and in the seal-impressions that it bears round its edges to a type of clay document associated with others of Class A at Knossos, Hagia Triada, and Zakro. To these may now be added an isolated inscribed tablet of rectangular form found on a votive site called Papoura that crowns a promontory of Mount Lasethi and overlooks the territory of the ancient Lyttos.[3] It has already been observed[4] that the inscribed Libation Table from the Dictaean Cave, which lies in the same region, presents characters belonging to the same group.

Of Papoura.

Fig. 15. Fantastic Seal Impressions from Zakro (2/1).

Wide extension of this form of script.

The above finds show that Type A of the linear script was once prevalent throughout the whole of Central and Eastern Crete. Everywhere we see it associated with remains belonging to the transitional age that covers the close of the Middle Minoan and the early part of the Late Minoan Period. Throughout this region it immediately succeeds the conventionalized pictographic or 'hieroglyphic' form of writing.

Examples from Phylakopi in Melos.

It would even appear that this type of linear script had a still wider extension in the Aegean world. There are traces of it or of a closely allied script at Thera,[5] while at Melos its existence is clearly established. The remains of the prehistoric settlement explored by the British School of Athens at Phylakopi in Melos show a very intimate connexion with Minoan Crete, with which the export of obsidian had doubtless much to do, going back into the Middle and Early Minoan Age. Numerous specimens of the

[1] R. C. Bosanquet, 'Excavations at Palaikastro,' *B. S. A.*, ix. p. 284. By Mr. Bosanquet's kind permission I am able to include a copy of this tablet in vol. ii of the present work. Two other fragmentary inscriptions of this class were also found at Palaikastro.

[2] *Gournia*, 1909, p. 55, Fig. 31.

[3] By the courtesy of Dr. Hazzidakis, Ephor-General of Cretan Antiquities, I have been enabled to publish the tablet, which will also appear in vol. ii.

[4] See above, p. 15.

[5] Dr. Robert Zahn has favoured me with a copy of a fragment of the rim of a 'matt' painted vase from his excavations in Thera, showing two incised linear signs and part of a third. The first is a common and typical character of Class A; the second may be a linearised version of the 'store-house' sign.

characteristic polychrome ware of the so-called 'Kamares' class were found on that site, and the beautiful wall-painting depicting flying-fish amid the sea spray, so closely paralleled by Knossian designs, may be taken to show that Minoan artists were actually employed by the Lords of Melos. Minoan influence in Melos.

The *per contra* side of this intercourse is supplied by the abundant remains of imported vessels presenting painted designs of birds in a characteristic Melian style[1] which occur in the Palace deposits already referred to as produced by the catastrophe of the Middle Minoan Palace. The Temple Repositories alone produced at least a dozen of these large vessels, which may have contained some choice brand of Melian wine. It was, therefore, particularly interesting to find on the handles of several of these imported vases, as well as on examples from Phylakopi itself, of the same or of Minoan Script used in Melos.

Fig. 16. Inscription on Melian Cup.

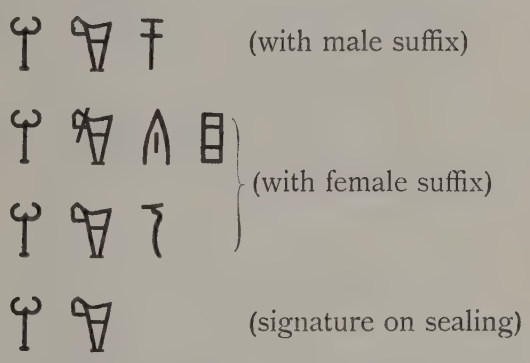


Fig. 17. Sign groups of Class B indicating male and female personal names.

other contemporary forms,[2] incised marks, a whole series of which correspond with the Cretan linear characters. This fact alone distinguishes the signs from mere personal marks due to the caprice of the individual potter, but a still fuller proof that they are to be regarded as the characters of the Cretan script was afforded by another vessel. On the base of a plain black-faced bowl belonging approximately to the same age, are incised two signs of the Minoan class (Fig. 16). In their general outlines they are common to both the linear scripts A and B. But the 'cup' sign with a stroke across its handle appears in a shape characteristic of the linear Class A.[3] Indication that the same language was current there.

It is highly interesting thus to find that the collocation of these two characters, presumably forming a word, recurs on tablets belonging to both classes of the linear script. It clearly indicates that the language in both cases was the same. In

[1] A 'bird vase' of similar form and in its designs fitting closely on to the Melian class referred to in the text, was found in Grave VI of the Akropolis at Mycenae (Schuchhardt, *Schliemann's Excavations*, p. 271, Fig. 278). It may, however, represent some local fabric of a somewhat later date, since it was associated in this grave with a characteristic ewer of the First Late Minoan style (op. cit., p. 270, Fig. 277). Nothing so late as this latter vessel was found in the Temple Repositories or in the archeological stratum of Knossos, to which it belongs.

[2] *Excavations at Phylakopi*, pp. 177 seqq.: 'The Pottery Marks,' C. C. Edgar and A. J. Evans.

[3] See my observations on the 'Significance of the Pottery Marks of Phylakopi', op. cit., pp. 183, 184. The figures here given are reproduced from this work.

Personal names and suffixes.

inscriptions belonging to Class B, moreover, these two signs appear in sign-groups having after them the determinative signs of 'man' or 'woman'. In these groups it is followed by other characters (see Fig. 17) which from a variety of evidence must be regarded as masculine and feminine suffixes. On the reverse of a sealing on the other hand they occur alone, and probably represent the signature of an official. There is every reason to believe, therefore, that the characters on the base of the Melian bowl give the personal name of the owner. It is to be remarked, however, in this case that the inscription apparently reads from right to left, which itself may be taken as an indication of an early date. As a matter of fact, while in the hieroglyphic script the characters run indifferently either way, the fixed direction of the linear inscriptions is from left to right.

Approximation in form of documents of Class A to hieroglyphic.

It is worth noting, as an archaic characteristic of this type of script in general, that the clay documents belonging to Class A show a certain approximation in their forms to those presenting the hieroglyphic inscriptions. In both cases we find comparatively small rectangular tablets; there are similar 'labels', and some of the clay disks and sealings show a certain conformity. The system of numerals is also in some respects intermediate between that of the hieroglyphic documents and that of the linear Class B.

Comparisons between Classes A and B.

Contents of the inscriptions.

The inscriptions of the linear Class A, when compared with those of the system (B) by which they were superseded at Knossos, are on the whole less lucidly disposed. There is a greater proportion of compound signs, and pictorial figures, indicating the contents of the document, are more sparsely used. Those that are found, however, and the accompanying numerals show that, as in the case of the other class, the bulk of the tablets had probably a business purpose. Among the pictorial figures that occur is the saffron flower, various vessels, including tripods, no doubt of bronze, and balances which must naturally be connected with the weighing of precious metals.

Graffiti on walls.

Remarkable examples exist of the application of linear script of this class to other objects besides the clay tablets and sealings. The two cups of characteristic Third Middle Minoan shape with ink-written inscriptions have been already mentioned.[1] Another application of this form of script curiously anticipates the discoveries at Pompeii. On the stucco face, namely, of some of the walls of the Royal Villa at Hagia Triada were found graffito inscriptions belonging to the present class, some of them repeating the same formulas.[2]

Inscription on Dictaean Libation Table belongs to this class.

But perhaps the most interesting discovery bearing on the use of this widely diffused type of linear script was the inscribed Libation Table from the Dictaean Cave of which mention has already been made.[3] The penultimate letter on the right of the inscription seems to represent , a characteristic form of Class A[4] which is absent from the other linear system. As a matter of fact, moreover, the cup-like receptacles of the Dictaean Table, with their raised rims, exactly resemble those of smaller

[1] See above, p. 29 and Fig. 12.

[2] The graffiti are themselves as yet unpublished.

[3] See pp. 13 seqq.

[4] A detailed analysis of this inscription must be reserved for the part of this work devoted to the illustration of the documents belonging to Class A of the linear script.

libation vessels, in the same dark steatite, found in the Temple Repositories at Knossos together with inscribed clay documents of the present class, and belonging, as we have seen, to the close of the Third Minoan Period.

A parallel to the inscribed Dictaean Table has now been supplied by the more fragmentary remains of a similar steatite object showing part of a cup with a raised rim found by Mr. Currelly at Palaikastro[1] near the mouth of a small cave or rock shelter afterwards used for interments. This example bears some fourteen incised characters wholly or partially preserved, and the signs themselves exhibit types which are peculiar to the linear Class A.

Change in sphragistic usage: hieroglyphic inscriptions replaced by artistic designs.

It is interesting to notice that with the appearance of this early variety of the developed linear script of Crete a significant change takes place in the character of the seals. The practice of using signets and bead-seals with incised inscriptions, so general in the age when the hieroglyphic form of script was predominant, is now given up.[2] The flat-faced seals so convenient for the engraving of sign-groups at this time disappear. Both the small signets and the elongated bead-seals in the form of three- or four-sided prisms, accommodating whole lines of inscription, fall into disuse. The highly developed artistic spirit that marks the close of the Middle and the beginning of the Late Minoan Age seemed to crave for a deeper and bolder style of engraving best secured by a slightly bossed surface, while it substituted essentially pictorial types for the mere calligraphy of the preceding epoch. The round or oval field of the lentoid and amygdaloid bead-seals or of the besils of the signet rings was now preferred, and became the vehicle for bold and beautiful designs. This new and fine style of gem engraving for a time subsisted side by side with the usage of the hieroglyphic script in its most developed form, as is seen from several of the clay seal-impressions from the Hieroglyphic Deposit.

Inscriptions on seals, replaced by graffiti on sealings.

But the craving for artistic satisfaction seems to have led the owners of signets to prefer the purely pictorial form, and, where it was necessary more particularly to emphasize the personal name or attributes, this was effected by means of a graffito inscription on the reverse of the clay sealing already impressed by the gem.[3]

[1] See *B. S. A.* xii. p. 2. The Director of the British School (Mr. R. M. Dawkins) has kindly supplied me with a photograph of this object, which will be reproduced in vol. ii of the present work. The associated 'larnax' burials belonged to the close of the Third Late Minoan Period, but the rock shelter seems to have contained earlier objects, for instance, the two beautiful ivory figures. I observed a similar rock shelter, composed of a projecting ledge of conglomerate, used as a small votive cave at Epano Zakro in Eastern Crete. It contained terra-cotta figures analogous to those of the votive station of Petsofà above Palaikastro, which was also a kind of rock shelter.

[2] A single example of a bead-seal entirely devoted to an inscription of this class came to light at Knossos during the excavations of 1903.

[3] One or two isolated examples exist, however, of signs belonging to Classes A or B engraved in the field of intaglios.

I. § 6. THE LINEAR SCRIPT OF CLASS B

Class A superseded by B in Remodelled Palace.

At Knossos we see the inscriptions of the Linear Class A entirely superseded in the Remodelled Palace by another closely allied system of linear writing here classified as B. To this class belong the great bulk of the deposits of clay tablets found in the rooms and magazines of the building, and they represent the form of script in use at the time of its final catastrophe, about the close of the fifteenth or the early part of the fourteenth century B. C. As to the higher limit of the use of this form of writing at Knossos we have no direct evidence, but some of the larger deposits of clay archives must have been naturally of gradual accumulation. It is possible, therefore, that it was already in existence in the earlier half of the fifteenth century before our era; indeed, it may well have overlapped the continued usage of the rival form of linear script at Hagia Triada and elsewhere.

Great deposits of tablets of this class at time of final catastrophe.

This class as yet confined to Knossos.

It is a remarkable fact that the documents of Class B, though far more numerously presented than the other, have as yet only been found on the site of Knossos, either in the Palace itself or its dependencies, including the Magazine of the Arsenal and the 'Little Palace' or 'House of the Fetish Shrine' on the hillside to the West.

Relations between A and B.

What, then, is the meaning of this wholesale appearance in the 'House of Minos' of a new system of writing? What are the relations between these two forms of linear script?

A detailed comparison of the signs and inscriptions of these two groups and of both of them with those of the hieroglyphic class must be reserved for the second Volume of this work. Here it may be sufficient to say that the obvious conclusion that the linear class of Script B, which at Knossos supersedes the other, is simply a later outgrowth of Class A, does not sufficiently explain the phenomena with which we have to deal. It is true that the general *facies* of these later Knossian documents is more advanced. The records are often much fuller and the tablets larger; there is a smaller selection of characters and a less complicated system of compound signs. At the same time, the conclusion that Class B was merely evolved out of the other is precluded by the fact that several of the signs belonging to it are not found in Class A, and that some of those which are shared by both 'signaries' appear in a more primitive form upon tablets belonging to Class B.

Two classes to a certain extent parallel.

Language similar.

The two systems, which contain a large proportion of common elements, must on the whole, therefore, be regarded as parallel to one another, and it is probable, as already suggested, that the usage of Class B in the Remodelled Palace of Knossos to a certain extent coincided in time with the continued use of Class A at Phaestos and Hagia Triada. The occurrence in both of similar sign-groups seems at any rate to prove that the language itself of those who used the one or the other Script was essentially the same. It looks, then, as if the introduction of Class B at Knossos

may have been the result of a dynastic revolution which also, perhaps, left its traces in the widespread catastrophe that brought to a close the Middle Minoan Period of the Palace. There was no real ethnic break, and the general continuity of the Minoan culture remained unaffected.

Characteristics of Second Late Minoan Period.

It underwent, indeed, from this time onwards a new development, which attained its most characteristic shape in the Second Late Minoan Period, best illustrated by the latest remains of the Remodelled Palace at Knossos. This period, though its artistic productions were still at a very high level, is characterized by a greater mannerism than is visible in the works of the preceding age—the great age of Zakro and Hagia Triada. Some of its manifestations, such as the miniature wall-paintings showing the Court ladies with their puffed sleeves and elaborate coiffure, may even be described as *rococo*. The long traditions of Palace life moreover had generated a style of art that can best be described as architectonic. The free, natural designs of the native lily or the saffron, of argonaut-shells or seaweed-covered rocks that we find on the clay or faience vessels of the two preceding periods, were now being systematized into mere patterns, or giving place altogether to elements of a more artificial origin. There was a general striving after decorative unity, and the motives found on such movable furniture as the painted jars reproduce the stylized clumps of Nile plants seen on the walls, the alternating rosettes and spirals of the friezes, and even such purely architectural features as columns and triglyphs. This is the essence of the great 'Palace Style' of Knossos.

Architectonic 'Palace Style'.

Mass of clay archives L. M. II.

There can be little doubt that we must ascribe to this Second Late Minoan Period, that is, to the concluding age of the Remodelled Palace at Knossos, the great bulk of the clay records there discovered presenting the script of Class B. It may even be said that in these documents we find a graphic expression of the same tendencies that produced the contemporary 'Palace Style' of art. The regular rules applied to the variation of certain signs betray the hand of official scribes and grammarians. The bureaucratic methods of control here visible are themselves the outcome of a long inheritance of dynastic organization. In some of the inscriptions we may recognize a real 'Court hand'—the result of a Palace School of Calligraphy.

Bureaucratic methods.

Great advance in Art of Writing.

A detailed analysis of these inscriptions and of comparative examples illustrating the different types of character of which this 'signary' is composed, must be reserved for the succeeding Volume of this work. It may be said here that the whole physiognomy of this linear script attests a very considerable advance in the Art of Writing. The characters themselves have a European aspect. They are of upright habit and of a simple and definite outline, which throws into sharp relief the cumbrous and obscure cuneiform system of Babylonia. Although not so cursive in form as the Hieratic or Demotic types of Egyptian writing, there is here a much more limited selection of types. It would seem that the characters stood for syllables or even letters, though they could in most cases be also used as words. Many are obviously compounds, and certain allied groups of signs show a regular systematic variation

Syllabic values of signs.

The Grammarian at work.

which betrays the hand of an official grammarian. The sinuous and boustrophedon arrangement visible in the hieroglyphic class of the Minoan inscriptions is here abandoned, and the writing is regularly from left to right. Moreover, the spaces and lines between the words, the espacement into distinct paragraphs, and the variation in the size of the characters on the same tablet, according to the relative importance of the text, show a striving after clearness and method such as can by no means be said to be a characteristic of classical Greek inscriptions. Frequent signs occur of value and quantity, and numerals, according to the decimal system, up to 10,000, the highest single amount referred to being 19,000. A whole series of tablets is, moreover, devoted to percentages.

Numerical system.

Forms of the tablets.

The clay tablets themselves were generally elongated slips with wedge-shaped ends, containing one or two lines of inscription, though some were larger and of squarer form,[1] and one example contained as many as twenty-four lines of writing. They seem to have originally consisted of unburnt clay, though probably sun-dried, and they owe their subsequent induration to the burning of the Palace itself. Fire itself, so fatal to other libraries, has thus ensured the preservation of the archives of Minoan Knossos.

Their storage.

During the period of their deposit in the Palace and its dependent magazines, however, various measures were taken to ward off the effects of damp from these clay documents. They were carefully stored, as will be shown, in chests of various materials, which were probably often set on shelves. The lead casing of the early cists beneath the floors of the West wing of the Palace may also have been partly designed as a means of protection for the clay archives. The fact that large numbers of them were found in basement chambers like those of the West Magazines does not necessarily imply that they had been in all these cases originally placed at so low a level. They often, as for example the considerable hoard contained in Magazines XIV and XV, were found at different levels above the floor and on two sides of a dividing wall, showing that they must have fallen through from the chamber above,

Preferably placed in upper chambers.

on the giving way of the upper pavement. The evidence of this is particularly clear with regard to the tablets found in the Magazine of the Royal Arsenal, West of the Palace, which lay within the basement area, indeed, but at various levels, and many of them above fragments of cement flooring fallen from the room above.[2] Two large hoards, again, found above the roadway of the Northern Entrance,[3] had obviously fallen, together with their containing chests of gypsum, from a room or gallery overlooking it on the West side. In this deposit—near the 'Sea Gate' of the Palace—it was interesting to note, as a sign of the 'departmental' distribution of these documents in various quarters of the building, that the largest of the sealings with which their cases had been secured contained a representation of a ship.

[1] An interesting parallel to the oblong Knossian type is presented by a clay tablet found by the German Mission in Armenia (C. F. Lehmann, *Verh. XIII. intern. Orient-Kongr.*, p. 134, Fig. 2; and cf. *Abhandl. d. k. Ges. d. Wissensch. zu Göttingen* (Ph.-Hist. Cl.), IX, No. 3, pp. 108, 109). It bears five horizontal incised lines and shows hieroglyphic characters reading from right to left and followed by numbers. The script differs however from the Cretan.

[2] 'Knossos,' *Report*, 1904, pp. 56 seqq.

[3] 'Knossos,' *Report*, 1900, p. 50.

But the best example of upstairs storage was afforded by the most numerous of all the hoards of inscribed tablets—those, namely, dealing with percentages. These were found in the Domestic Quarter of the Palace,[1] partly strewn along a stratum overlying the pavement of the Upper East-West Corridor, partly brought down with it into the Lower Corridor, and lying in positions which showed that they had fallen from a higher level. The gallery in which these tablets, or rather the series of coffers that contained them, were originally deposited had here been on the third story, apparently immediately under the roof. One result of this lofty position was that they had been more affected by the conflagration of the building than those belonging to other hoards, some specimens indeed having been charred to such an extent as to obliterate the inscriptions (Fig. 18).

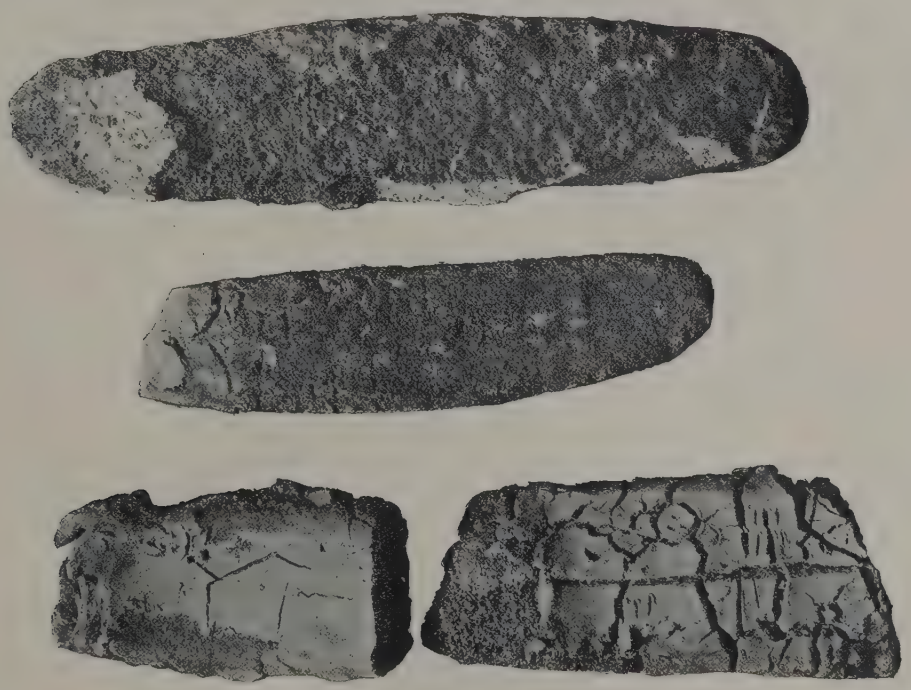


Fig. 18. Clay tablets from East-West Corridor showing effects of fire.

In certain cases, however, the coffers containing the tablets had been placed in basement chambers. That found in the bath-shaped receptacle[2] is an instance of this. Another case in point is supplied by a hoard which may be taken as a representative example of these deposits. The hoard in question, known as the 'Deposit of the Chariot Tablets', largely referring to the royal chariots and horses, was found for the most part in a limited area of a small ground-floor chamber on the East side of the Central Court,[3] which had all the appearance of an office or bureau. The bulk of these lay within a rectangular space, shut off, except for a small opening, from the

But also stored in basement rooms.

Remains of their cases.

[1] 'Knossos,' *Report*, 1901, pp. 100–2; and 1902, p. 38.

[2] See above, p. 18.

[3] 'Knossos,' *Report*, 1900, pp. 29, 30. See below, p. 42, Fig. 19.

rest of the chamber by a stone bench, which may have stood before a wooden counter and have been the seat of an official. Within this back space the tablets were heaped, mostly in a broken condition, together with fragments of charred wooden cases. A part of one of these cases showed a waved ornament and a foliate border in relief of a characteristic Late Minoan type, which recurs in contemporary bronze and stone work as well as in the ceramic and painted plaster decoration. Seven small bronze hinges also came to light, affording a presumption that there had been at least four boxes.

Deposit of the Chariot Tablets.

Tablets belonging to various classes of possessions to be found in the royal stores and arsenal seem to have been consigned here to different cases. The predominant type (see Fig. 19), from which the name of the deposit is taken, exhibited figures of a horse's head and chariot preceded by what, from some of the better drawn examples, which show the plates and shoulder-pieces more clearly, may with great probability be regarded as a cuirass. It was interesting, however, to notice that in some cases this latter object had been erased and replaced by the outline of a bronze ingot, so that it would appear that the royal charioteer was at times supplied with the equivalent in metal in place of the ready-made cuirass. In addition, however, to these prevailing types very miscellaneous subjects were also represented in this deposit. Among them

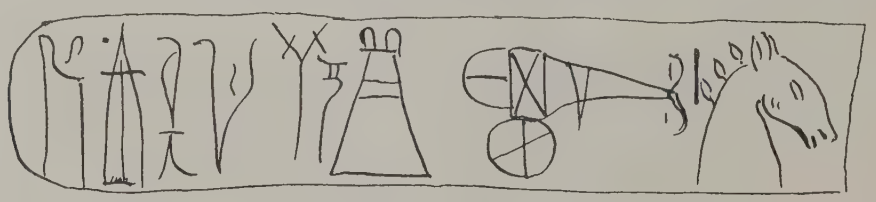


Fig. 19. Typical example from 'Deposit of the Chariot Tablets'.

were metal vases and a plant with long stamens, evidently the saffron (*Crocus sativus Graecus*), used as a dye. Another series of tablets related to swine.

An interesting phenomenon, afterwards continually repeated in the case of similar hoards, was the occurrence of fourteen clay sealings, still partly threaded by the carbonized remains of the string by which the boxes had been secured. These presented impressions of engraved signets, among the subjects being lions and bulls, a wild goat and young, a female votary before an altar, a wild bull, and apparently a Minoan Prince in his chariot, this latter, however, almost entirely destroyed by the conflagration.

Cases secured by sealings.

A specially significant feature—constantly repeated in other similar cases—was that several of these seals had their impressions countermarked, and their backs endorsed and countersigned, by controlling officials. Good examples of these are given in Fig. 20: *a*, from the neighbouring 'Room of the Niche', shows a figure of a bull countermarked by a 'balance' sign, and presenting apparently two signatures on its back; on *b*, from the fifth Magazine, we see a design of a man in a peaked helmet struggling with a bull, cancelled, as it were, by a barred 2 sign, while on its back again appears a double endorsement.

Countermarks and endorsements of sealings.

The clay documents forming 'the Deposit of the Chariot Tablets' were found for the most part in a much broken condition. They lay on or near the floor level, and the conclusion most compatible with the circumstances of the find was that they had been stored in rows of small cases set on shelves along the back wall of this small area. Most of the pieces, like the remains of the wooden chests that accompanied them, showed traces of burning. Owing, however, to the comparatively low level at which they had been originally placed, some had escaped the effects of fire and were much in their original condition. I had indeed a disastrous experience of how easily moisture could affect the tablets when in this unbaked state. A group of four such which lay intact in their original order on the pavement of the

Deleterious effect of moisture.

a 1 *a* 2 *b* 1 *b* 2

Fig. 20. Sealings with countermarks and endorsements ($\frac{2}{1}$).

room, held together by some indurated earth, were carefully cut out by me in one piece with their earthy matrix, and transferred on a wooden tray to the old Turkish house in the glen below Kephala, which served as head quarters. But a torrential storm coming on during the night, the rain-water poured in at several places owing to the bad state of the roof, and unfortunately inundated the tray containing the group of tablets. When the mischief was discovered it was too late, and they had been already reduced to a pulpy mass.

In the South-East corner of the eighth West Magazine there also occurred on the floor level a small hoard of very imperfectly baked tablets.[1] These were embedded in

[1] 'Knossos,' *Report*, 1900, p. 35. See below, p. 45, Fig. 21.

Series of tablets found in original order: referring to axes.

a clay mass which no doubt owed its formation to the dissolvent effects of moisture on what had originally been a much larger deposit of inscribed tablets. They were moreover accompanied by fragments of decayed gypsum, apparently belonging to a small coffer of that material in which they had been contained. What remained of the tablets themselves was in a very bad state, but with the aid of a plaster backing I was able to raise a series which were lying on their faces in a regular file, and thus to preserve a record of their original arrangement in the gypsum chest (see Fig. 21). From the pictorial figures, added to the linear inscriptions on these, it appears that they referred to bronze single-edged axes.

Hoard of the Arsenal.

Tablets enumerating stores of bows and arrows.

Cases of arrows found near.

The circumstances of the finding of another large hoard of tablets in a magazine—connected apparently with the Arsenal—on the paved Minoan Way, West of the Palace,[1] show that the objects referred to on the tablets were sometimes stored close by them. The pictorial signs on the tablets of this deposit referred to the frames and wheels of chariots, spears or lances, the horns of wild goats used in the manufacture of the Cretan bows, and also arrows—two large lots of which, of 6,010 and 2,630, or 8,640 in all, are the subject of one record. It was, therefore, specially interesting to discover in the immediate neighbourhood of these tablets two actual dépôts of arrows lying at a distance of about three metres from one another. The deposits had, in each instance, been contained in wooden boxes with bronze loop-handles (like those of the chests containing the chariot tablets mentioned above), and, embedded in the remains of the chests, were the carbonized shafts, and, still partly attaching to them, the bronze heads of hundreds of arrows.

Sealings on chests.

Arrow as countermark.

Here again, as in other cases, together with the charred fragments of the chests, were found the clay sealings with which their string binding had been secured (Fig. 22). These sealings were three-sided, the string passing through their major axis. Both chests had been secured in an identical manner with three variant sealings, each of which was duplicated. The signet used exhibited a carelessly engraved design of a couchant lion, and this had been impressed on the principal face of all the clay sealings. In one case the smaller sides of the sealing (due to the pinching in of the clay nodule by the finger and thumb) were both of them plain, and the lion device appeared on the principal face without a countermark. In the second variety this design is cancelled by the arrow sign, doubtless referring to the contents of the chest, while the two smaller sides of the sealing are countersigned in the linear script, the 'Throne and Sceptre' sign suggestively appearing at the beginning of one signature. The third variety shows the lion type without the arrow mark, and a signature on only one of the minor faces of the sealing.

Methodical arrangement.

The bureaucratic method and elaborate system of control here exemplified are constantly perceptible in the contents and arrangement of these Minoan archives. The tablets, as we have seen, were carefully filed, and it appears moreover that some of

[1] 'Knossos,' *Report*, 1904, pp. 54 seqq. It has already been noted (see p. 40 above) that the tablets and the arrows to which some of them refer had fallen into the basement from the room above.

FIG. 21. Nest of tablets as found, showing their original order.

Titles on back, like books.

them were arranged like books on a modern shelf so as to show their edges, the small sides of the tablets, answering to the back of a book, being in several cases docketed with a short title referring to the contents of the inscription. Fig. 23 shows the edge of a tablet thus docketed. In this case, as appears from a variety of examples, the first two signs = the 'total' of the objects specified. They are followed by an ideograph, in the shape of an oblong figure, indicating their character, and the number = 40 (four horizontal lines), which corresponds with the separate items on the face of the tablet, viz. 1, 37, and 2, added together. This is succeeded by a sub-heading consisting of a degenerate form of the 'Throne and Sceptre' sign, prefaced to the same ideograph, and by further numbers.

Seals with recurring formulas.

Different sets of tablets are distinguished by certain recurring formulas peculiar to themselves, and a knowledge of such formulas and their distribution in most cases supplies a clue to the individual deposit from which any particular tablet was derived.

Minoan method aids modern justice.

The methodical disposition of these documents in the 'House of Minos' was indeed of such a nature as to settle a case in a modern Law Court.

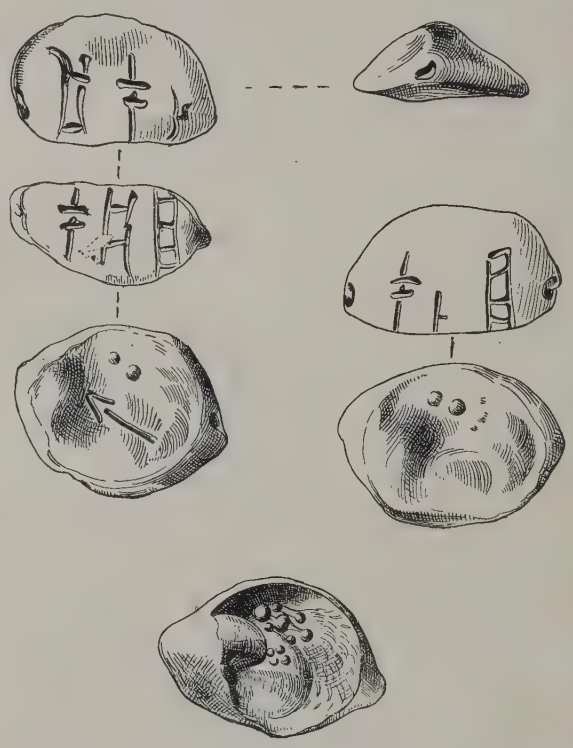


Fig. 22. Clay sealings with countermarks and signatures from Chest of Arrows ($\frac{2}{1}$).

The circumstances were these. In 1901 I discovered that certain tablets had been abstracted from the excavations and had shortly afterwards been purchased by the Museum at Athens. It further appeared that one of our workmen—a certain Aristides—had left the excavation about the same time for Greece, and had been seen in Athens offering 'antikas' for sale under suspicious circumstances.

Theft of tablets detected by its means.

On examining the inscriptions on the stolen tablets I observed a formula that showed that some or all of the pieces belonged to a deposit found in Magazine XV. A reference to our day-books brought out the fact that the same Aristides had taken part in the excavation of this particular Magazine a little before the date of his hasty departure. On his return to Crete, some months later, he was accordingly arrested, and the evidence supplied by the Minoan formula was accepted by the Candia Tribunal as a crowning proof of his guilt. Aristides—'the Unjust'—was thus condemned to three months' imprisonment.

Majority of tablets business records.

As was no doubt also the case with the tablets and 'labels' of the earlier classes, the great majority of the clay documents of Class B contained business

records, such as accounts and inventories, and in nearly all cases are associated with numbers. The objects referred to by these lists are in most cases easily recognizable from the pictorial representations appended to the different entries. Some of these have been already specified, and the various properties referred to throw an interesting light on the civilization and economic methods of the contemporary lords of Knossos.

Pictorial representations of objects.

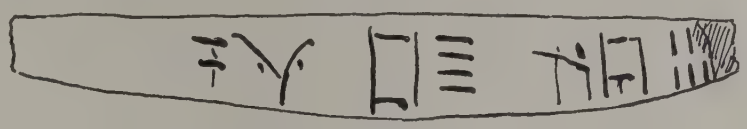


Fig. 23. Edge of tablet, docketed with summary of contents.

We see here implements and weapons, chariots and their parts, and the cuirasses of royal charioteers, ingots, and the scales in which the Minoan talents were weighed, precious vessels and others apparently containing various liquid products, granaries or storehouses on piles, and different kinds of cereals, the saffron flower used for dies, several kinds of trees, domestic animals, including horses and swine, and crook signs which seem to indicate sheep or goats. As already noted, a whole series of tablets refers to percentages, showing a considerable advance in business methods.

Different kinds of property enumerated.

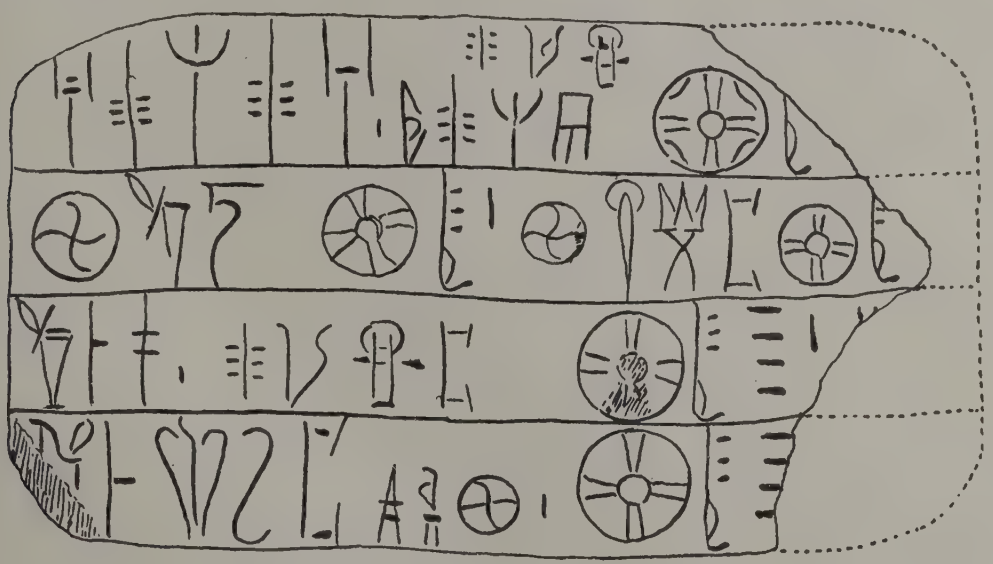


Fig. 24. Tablet relating to chariot wheels.

The example given in Fig. 24 shows a tablet relating to chariot wheels, which, considering the rough and declivitous character of a great part of the island, must have been an expensive item. The concluding entries of the two lower lines are followed in each case by numbers indicating 40, plus some units.

Large tablet with lists of men.

A number of documents contain lists of persons of both sexes, with what appear to be personal names, followed in each case by the ideograph of 'man' or 'woman'. The largest tablet discovered, measuring as much as 26·7 by 15·5 centimetres ($10\frac{5}{8} \times 6\frac{3}{16}$ in.), was a document of this class. It was from an upper chamber of the Hall of the Colonnades,[1] and presented twenty-four lines of inscription. The contents are divided into three distinct paragraphs prefaced by separate headings, followed by a series of sign-groups, to all of which the man-sign is attached. At the end of each list are numbers corresponding with the total number of the individual names

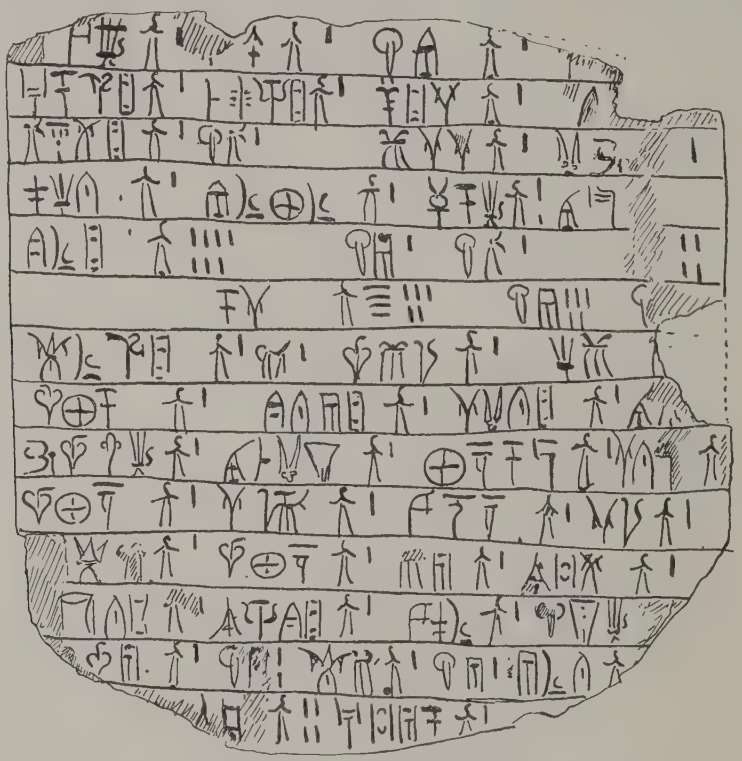


Fig. 25. Copy of tablet showing women's names.

thus indicated. We have here, therefore, a description of three categories of persons, though what their quality may have been it is at present impossible to say. The neatly written document reproduced in Fig. 25 shows, on the other hand, a series of sign-groups followed by the ideograph of 'woman'.

Other records.

Some tablets contain neither pictorial figures nor numbers, and may be records of a quite different class. A good example of this class of inscription, from the large deposit by the Northern entrance passage, is given in Fig. 26. Like that referred to above, it is of exceptional size, measuring 15 centimetres by 12, and shows eight lines of inscription in characters of good style. The sign-groups,

[1] 'Knossos,' *Report*, 1901, p. 108.

probably representing words, here consist of from two to apparently five[1] characters, an upright line marking the termination of each. The total number of words seems to be twenty, divided into three paragraphs,[2] the first ending on line 2, the second on line 6, and the third on line 8. Here there are no quasi-pictorial indications of

FIG. 26. Facsimile of tablet containing three paragraphs.

persons or objects, and no numerals are given. It seems probable, therefore, that in a case like this we have a record of another kind, possibly a contract or a judicial decision, or even an official proclamation.

[1] The first group of the last line shows three signs and a fragment of a fourth, but there is room for another in the missing piece of the tablet. Groups of five signs are often found.

[2] Had the sentence run on from line 2 to 3 there would have been room for the first word of line 3, consisting of only two characters. But a blank space is left. The same consideration affects line 6, which could have been spaced so as to include the first group of the succeeding line.

Ink-written documents.

That, in addition to the tablets, ink-written documents must also have been known is shown by the inscribed cups belonging to Class A referred to above,[1] which give some indications of the use of a reed pen. That there was a large correspondence on materials that have not survived the conflagration of the building may be gathered from the frequent deposits of clay sealings, mostly broken in the process of opening the documents that they had secured or authenticated. The most extensive of these deposits came from an upper room in the Domestic Quarter of the Knossian Palace—described for that reason as the 'Room of the Archives'.[2] The material of the documents which these sealings had originally secured may have been parchment or even papyrus. We may also recall the Cretan tradition according to which palm-leaves were the earliest vehicle of writing.[3] Some of the sealings may have secured folding wax tablets such as that on which the σήματα λυγρά of Proetos were said to have been written.[4]

Broken sealings.

Was there a fuller literature?

Was there more than this? Were there still fuller records, such as chronicles and sacred writings; liturgies, and books of magic, or hymns, possibly, like that to the Dictaean Zeus? May we suppose that manuscript copies existed of the Laws of Minos; that Epic tradition was already partly fixed by writing in prehistoric Crete, or that early prose romance had taken literary form as in contemporary Egypt?

None of these possibilities can any longer be excluded, but the perishable nature of the materials that must be presupposed for the existence of any extensive literature makes it very improbable that it should have survived the catastrophe of the Cretan Palaces. Extracts of such works, and notably legal paragraphs, may eventually be found to exist on the larger tablets. On the other hand, inscriptions on stone tables or metal plates, such as that on which is contained the treaty between the Hittite king and Rameses II, are at present wanting, and the only hint that monumental inscriptions existed is supplied by the Dictaean Libation Table.[5]

Monumental evidence to seek.

Graffito inscriptions in Knossian Palace.

That there were graffiti on the walls of the rooms of the Knossian Palace, as in the case of the Royal Villa of Hagia Triada,[6] appears from an observation already made by me in connexion with the excavation of 1901.[7] On the West wall of the Room of the Two Cists, beneath the floor of which were afterwards found the Temple Repositories, were visible horizontal lines accompanying graffiti that seemed largely to represent simple scores in the shape of more or less upright lines, but which were also accompanied by certain linear characters apparently belonging to Class B. The stucco surface on which these appeared was subsequently destroyed by a storm, but a sketch of the graffiti made at the time when they were first noted will be seen in Fig. 27. We have here a truly Pompeian touch.

[1] See p. 29.
[2] 'Knossos,' *Report*, 1902, pp. 75 seqq.
[3] See below, p. 105.
[4] *Iliad*, vi. 168 seqq. See below, p. 64.
[5] See above, p. 14.
[6] See above, p. 36.
[7] 'Knossos,' *Report*, 1901, p. 27. The graffiti are not mentioned there, however, as they were only observed by me at the beginning of the next season and have remained unpublished.

As has already been observed, the great bulk of the tablets presenting the linear script of Class B belong to the latest Palace Period of Knossos (Late Minoan II). The art of this period, as illustrated by its most important works, brings it into close relation with the middle of the Eighteenth Dynasty in Egypt. The wall-painting of the Cup-bearer, for instance, exhibits to us for the first time in his Cretan home a representative of the enterprising Aegean race, known to the Egyptians as the *Keftiu* or 'Kefts', so frequently depicted on tombs of that period as bringing offerings to the Viziers of Thothmes III and Amenhotep II.[1] More than this, the characteristic

Bulk of tablets of latest Palace period (L. M. II). Chronological data supplied by Egyptian evidence.

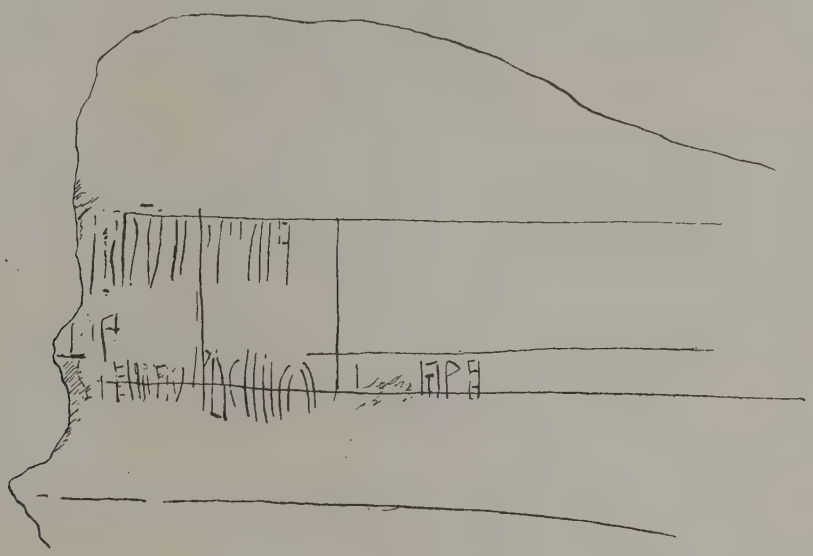


Fig. 27. Graffiti on stucco facing of wall, Room of the Cists, Knossos.

outline of the copper ingots borne on their shoulders by some of these Kefts chieftains reappear on a series of inscribed tablets from the Knossian Palace,[2] while a hoard of nineteen of the ingots themselves was actually found in a repository of the Royal Minoan Villa excavated by the Italian Mission at Hagia Triada.[3] Amongst other precious gifts borne by the Keftiu on the Egyptian monuments are gold ox-heads,[4] representing a certain fixed weight, and cups of the same precious metal, of the characteristic Minoan form best known through the Vapheio Vases.[5] It was, therefore, especially interesting to find on a linear tablet of Class B, of which the

The Kefts and their offerings. Similar ingots. Ox-heads and vases on tablets.

[1] Detailed comparison between the vases seen in the hands of the Keftiu and 'Mycenaean' types were first worked out by Steindorff in *Arch. Anzeiger*, 1891, pp. 11 seqq. For the 'Cup-bearer' and the companion figures of the 'Corridor of the Procession', see A. J. E., 'The Palace of Knossos in its Egyptian Relations,' pp. 5, 6 (*Egypt. Expl. F. Arch. Report*, 1900–1).

[2] See my 'Minoan Weights and Mediums of Currency' in *Corolla Numismatica*, 1906, pp. 355 seqq., and 'Knossos,' *Report*, 1900, p. 51.

[3] Op. cit., p. 358, and Paribeni, 'Lavori eseguiti d. Miss. Archeol. ital. nel palazzo di Hagia Triada dal 23 febb. al 15 luglio 1903' (*Rend. d. Acc. d. Lincei, Cl. di Sc. mor.*, Ser. 5ª, vol. xii, pp. 317 seqq.).

[4] Virey, *Tombeau de Rekhmara.*

[5] Steindorff, op. cit., p. 14, reproduces two such vases from the wall-paintings of Theban tombs, first published by Wilkinson and Prisse d'Avennes; cf. too H. R. Hall, *Oldest Civilization of Greece*, pp. 53–5, and W. Max Müller.

principal part is preserved, an inventory relating to oxheads and to cups exhibiting the same typical outline and square-cut handle.[1] The inscription itself is well written, with what appears to be an annotation in smaller characters above one line, and a small single sign after the figure of the cup, which perhaps describes its metal. The three perpendicular strokes that follow indicate the number of cups to which the preceding entry refers.

Age of Thothmes III.

The general contemporaneity with the age of Thothmes III and his successors established by the artistic remains belonging to the latest Palace period at Knossos is thus borne out by the internal evidence supplied by the class of tablets with which it is associated. We have, therefore, a double warrant for concluding that the linear script of Class B was in full vogue by the middle of the fifteenth century B.C.,[2] and the beginnings of this style, as noted above, may go back to a somewhat earlier date.

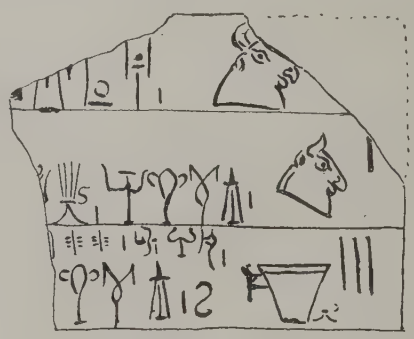


Fig. 28. Tablet relating to gold oxheads and cups of the Vapheio type.

Final catastrophe of Palace at Knossos.

The close of this highly civilized period, known as Late Minoan II, is marked at Knossos by a second great catastrophe comparable to that which brought to a close the Middle Minoan Age. A chronological landmark for the date of this catastrophe is again supplied by the Egyptian evidence. It has already been pointed out that the last Palace period at Knossos is marked by a fine quasi-architectonic ceramic style in harmony with the decoration of the Palace halls. Examples of this fine 'Palace style' were exported far beyond the limits of Crete, and have been found in contemporary tombs at Mycenae, in the Vapheio tomb near Sparta, and even as far afield as the coast of Canaan.[3] In the rubbish heaps, however, of the Palace of Akhenaten at Tell el-Amarna were found hundreds of Aegean sherds showing the grand ceramic style already in a state of decadence, and this evidence is corroborated by the imported 'Late Minoan' vases found in more or less contemporary Egyptian tombs. Hence it follows that the great catastrophe of the Palace at Knossos must at least have preceded the date of these Egyptian deposits. Taking 1380 B.C.[4] as the approximate date of the accession of Akhenaten, the Tell el-Amarna fragments would belong to about the middle of the fourteenth century B.C. It seems reasonable,

Approximate chronology supplied by Tell el-Amarna.

[1] See too my remarks on this tablet in *Corolla Numismatica*, pp. 352, 353.

[2] I had previously accepted the earlier dating of Dr. Budge and Mr. H. R. Hall (*Oldest Civilization of Greece*, pp. 56-9), which carries back the beginning of Thothmes III's reign to 1550 B.C. But, as Professor Ronald Burrows points out (*The Discoveries in Crete*, p. 94), 'the unusually strong combination of Breasted, Petrie, and the whole Berlin School places the reign of Thothmes III within a year or two of 1500–1450, and makes Amenhotep II come to the throne at the later date.' According to this chronology the tomb of Sen-Mut dates from about 1480 and that of Rekhmara from about 1450.

[3] See A. J. Evans, *Prehistoric Tombs of Knossos*, p. 107.

[4] This is Eduard Meyer's date, *Aegyptische Chronologie*, p. 68.

therefore, to suppose that the overthrow at Knossos had taken place not later than the first half of the fourteenth century.

Indigenous tradition still in the main unbroken.

That the catastrophe at Knossos itself, and the new condition of things that characterizes the Period of Reoccupation, were partly due to the successful incursions of men representing a closely allied form of culture from the mainland of Greece is in itself quite possible. But the continued imitation of ceramic forms derived from metal prototypes of the last Palace Period itself affords a conspicuous proof that for a time at least the indigenous tradition remained in the main unbroken. The evidence of the survival of the Minoan script, Class B, of which as yet we have no authentic record on the Mainland side, points to the same conclusion.

Partial reoccupation and recovery.

The great catastrophe put an end to the Palace as a whole. As far as it is possible to ascertain, some parts of the area were never again the scene of human habitation. It is certain, however, that after an interval of time, traceable generally by about 25 centimetres of deposit, a large part of the building was reoccupied, and partitioned out, with the aid of cross-walls, into poorer dwellings. The new settlers who dwelt in these represented a somewhat later stage and a humbler aspect of the same civilization, marked by the style which represents the close of the Third Late Minoan Period. Only in the Domestic Quarter of the Palace—a part of which, perhaps, was almost continuously occupied—are there signs of attempts at restoration on a large scale which make it probable that dynasts of the old stock still maintained a diminished state on the Palace site.

L. M. III period of decline.

The great catastrophe of the Later Palace, about the beginning of the fourteenth century B. C., may be certainly taken to indicate that the Minoan polity as a whole suffered at this time a severe set-back. It heralds the decline of the great civilization of prehistoric Crete: but there is still no real break. There is no room as yet for any wholesale displacement of the indigenous stock by foreign invaders. We should rather, perhaps, see in it the results of some internal revolution, bringing to the fore, it may be, more plebeian elements of the population. The standard of wealth, and with it the standard of art, fell—clay, for instance, largely replacing metal for domestic utensils—but the civilization remained essentially Minoan. The proof of this is afforded less by the remains on the Palace site itself—a large part of which seems to have remained for a time at least untenanted—than by the extensive Knossian cemetery of Zafer Papoura explored by me in 1904,[1] which covers the close of the Palace Period as well as the immediately ensuing age—the earlier part, that is, of 'Late Minoan III'. The high interest of this cemetery is due to the fact, 'that throughout its whole duration it attests a striking continuity of local traditions. To whatever circumstances was due the great overthrow of the later Palace, it did not bring with it any real break in the course of the Late Minoan culture. The models supplied by the great Palace Style of wall- and vase-painting, of metal-work and gem-engraving,

But no real break.

[1] A. J. Evans, *The Prehistoric Tombs of Knossos*: 'I. The Cemetery of Zafer Papoura', pp. 1–135 (London, Quaritch, 1906, and *Archaeologia*, vol. lix).

continued to be followed, though they became more and more debased. A period of immobility in art is succeeded by one of gradual decadence, but the course of Minoan civilization, whether still along the level or on the slight downward incline, was as yet uninterrupted in the main.'[1]

I. § 7. SURVIVALS OF THE ART OF WRITING DURING THE DECADENCE OF THE MINOAN AND MYCENAEAN CULTURE

Mainland Mycenaean influences.

The evidences of a more serious dislocation, however, are not long in presenting themselves. Towards the close of this Third Late Minoan Period—marked by the reoccupation of the Palace site—we note a certain reflex action from the Mainland or the 'Mycenaean' side in its geographical sense. The Mainland type of hall with its fixed central hearth, which at this time replaces the earlier Minoan type in Melos,[2] seems to have made its way in Crete,[3] and is possibly even represented on the site of the Knossian Palace by the late rectangular structure set up at this time near its South Propylaeum. The immigration of kindred elements driven South from the Peloponnese or elsewhere by the pressure of the Northern invaders may certainly be admitted at this time. But even if we allow for a wholesale arrival of such settlers from oversea, the form of culture which they brought with them was little more than the return, in a decadent guise, of elements that themselves had emanated from an earlier phase of the same Minoan civilization. It is a highly significant fact that the old cult of the Mother-Goddess and of her fetish Double-Axe survived in the shrines of this latest Minoan Age.

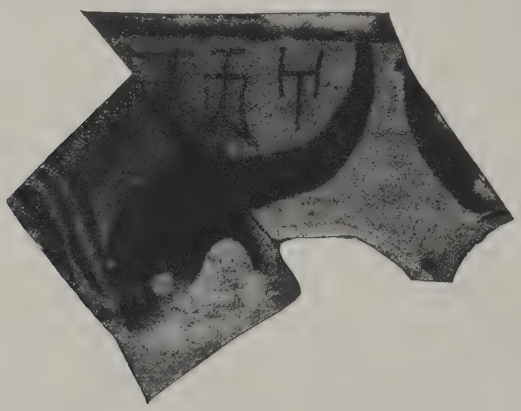


Fig. 29. Part of bowl (L. M. III) showing painted inscription.

Art of Writing still survives.

In Crete, at any rate, together with other traditional arts, the Art of Writing seems to have been still preserved. In the 'Court of the Distaffs' belonging to a region of the Domestic Quarter, where a certain continuity of occupation was observable, there came to light, together with other vessels belonging to the Third Late Minoan Period, a part of a painted bowl (Fig. 29),[4] presenting, beneath its

[1] Op. cit., p. 133.

[2] See D. Mackenzie in *Phylakopi*, p. 271 and *Cretan Palaces*, B. S. A. xi. p. 220.

[3] The rectangular building above the earlier remains at Hagia Triada may have been a hall of this Mainland class. See Mackenzie, *Cretan Palaces*, B. S. A. xi. *loc. cit.*

[4] 'Knossos,' *Report*, 1902, p. 66, and Fig. 33, p. 67.

glaze and as part of its original design, three linear signs, one of which is of abnormal formation. In the same quarter of the site, in a passage near the late shrine of the Double Axes,[1] were found remains of a hoard of tablets presenting a rather decadent type of Class B of the linear script, here associated with representations of swords which, from their somewhat leaf-shaped forms, anticipating that of the early Iron Age (Fig. 30), seem to belong to a somewhat late phase of the Minoan civilization. It is possible that some other inscriptions found on the Palace site may also be set down to this Reoccupation Period.

L. M. III tablets in 'House of Fetish Shrine'.

In the large building on the hill West of the Knossian Palace, known from the rude stone idols of its domestic shrine as the 'House of the Fetishes',[2] have been brought to light further corroborative materials. This important building, as yet incompletely explored, reproduces on a somewhat reduced scale many of the salient features of the Palace itself, with which it was brought into direct connexion by a Minoan paved way. Moreover, it curiously repeats its history. Here, too, at the same epoch, a sudden revolution took place in the existing conditions, and the once

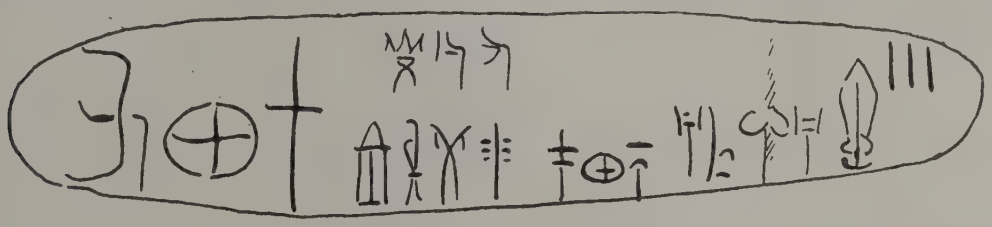


Fig. 30. Tablet relating to leaf-shaped swords.

seignorial halls were parcelled out among humbler denizens. But on the later floors there were found heaps of more or less fragmentary seal-impressions, attesting the survival of similar usages as regards securing documents and possessions, and presenting under a decadent aspect the same artistic types as those of the preceding age. It was therefore important to discover, in juxtaposition with these, remains of tablets[3] showing inscriptions belonging to Class B, but executed in a somewhat inferior manner.

Minoan survivals in Cyprus and Northern Greece.

It will be shown below that there are distinct evidences of the existence of a branch of the Minoan linear script in Cyprus at a comparatively late period. It is time to call attention to a find that seems to indicate the existence of another closely allied system in Greece itself in the latest Minoan Age.

In spite of the negative results obtained by Schliemann at Mycenae and Tiryns, all probability seems in favour of some form of early writing having existed on the mainland side. Recent discoveries have now produced the clearest evidence that the Minoan type of civilization was much deeper rooted even in Northern Greece than had hitherto been realized. A marble spout of a fountain in the form

[1] 'Knossos,' *Report*, 1902, pp. 94, 95. This deposit comes down perhaps to a somewhat later date than that suggested in the *Report*.

[2] 'Knossos,' *Report*, 1905, pp. 2–16.

[3] Op. cit., p. 16.

of a lioness's head found by the French explorers at Delphi[1] is of identical fabric with more than one specimen belonging to the latest Palace Period at Knossos.[2]

The 'Kadmeia' of Thebes and the Palace of Orchomenos.

Rooms belonging to an important building, apparently a Palace, including traces of brilliant wall-paintings, have quite lately been struck on the Kadmeia of Thebes.[3] What seem to be the remains of another Palace have been brought to light by the German explorers at Orchomenos, and the fragments of wall-paintings found there, both in their decorative motives and their indications of pillar shrines and the sports of the bull-ring, are identical down to the minutest details with similar works from Knossos.[4] These discoveries show that in the great closing age of the Cretan Palaces the same craftsmen, or at least those who had worked in the same school, were indifferently employed in the island centre of the Minoan civilization and at Delphi and Orchomenos. They are speaking evidences of the existence, at least during the Second Late Minoan Period, of a Minoan predominance, not to use a stronger expression, extending North of the Gulf of Corinth. The correspondence of 'Minos' with the Boeotian 'Minyas'—long since suggested on philological grounds—receives a striking corroboration from these archaeological discoveries.

In the Boeotian Palaces we find the same artistic designs and technical processes as in the great foundations of Minoan Crete. Is it reasonable, then, to suppose that this Mainland culture, so identical in other respects, was ignorant of the Art of Writing?

The Boeotian traditions of Kadmos as inventor of the Alphabet.

In this connexion the old tradition that Kadmos invented letters gains a new significance. Kadmos, as we now know, is simply the Eponymos of the hill citadel of Thebes, the Kadmeia, and represents a local name common to the aboriginal element on both sides of the Aegean.[5] The epithet Φοῖνιξ, itself, as Fick has shown, has nothing to do with the Phoenicians. The prehistoric past of Boeotia now proves not to be Phoenician but Minoan, and no single trace has come to light of Semitic colonization nor of even a single object of Phoenician import.

It has been already noted above that during the Third Late Minoan Age, which immediately succeeds that to which the lioness's head of Delphi and the painted stucco of Orchomenos belong, the centre of gravity of the Minoan world tends to shift to the Mainland side. The Continental branch at this time begins to react on the culture of Crete as well as on that of the Aegean islands formerly under Cretan domination.

[1] Professor Paul Perdrizet kindly called my attention to this head.

[2] 'Knossos,' *Report* (1900), *B.S.A.*, vi. p. 31. An illustration is given by Perrot, *L'Art dans l'Antiquité*, viii. p. 161, Fig. 87.

[3] These excavations were due to M. Keramopoulos, who regards the building as the 'House of Kadmos'. See *Am. Journ. of Archaeology*, xi, 1907, p. 97.

[4] H. Bulle, *Orchomenos* (1907): 'I. Die älteren Ansiedlungsschichten,' pp. 71 seqq., 127, 128, and Pls. XXVIII, XXIX. And cf. *Die Woche*, 1904, Heft 5, pp. 215, 216. Dr. Bulle, who rightly regards the resemblance with the Knossian paintings as extraordinarily close, is led to the belief that the work was executed by Cretan artists. He does not consider the building at Knossos to represent a shrine, but his arguments against the religious element in this and other works of Minoan art have by no means been borne out by the most recent Cretan discoveries. The basement of a small shrine like that of the Miniature Frescoes at Knossos has now been brought to light in juxtaposition to the earlier shrine of the Goddess with the Snakes.

[5] Fick, *Vorgriechische Ortsnamen*, pp. 81, 84, 128. Kadmos is also a river-name.

That during the 'Reoccupation Period' at Knossos, which answers to the close of this epoch, any appreciable influence was exercised by Crete on Northern Greece is not at all probable.

This consideration has an important bearing on the very interesting discovery made by Dr. Bulle of a late 'stirrup-vase' at Orchomenos, belonging to the period succeeding the age of the Minoan wall-paintings, presenting a group of four linear

Inscribed vase from Orchomenos:

Fig. 31. 'Stirrup-vase' from Orchomenos with painted inscription.

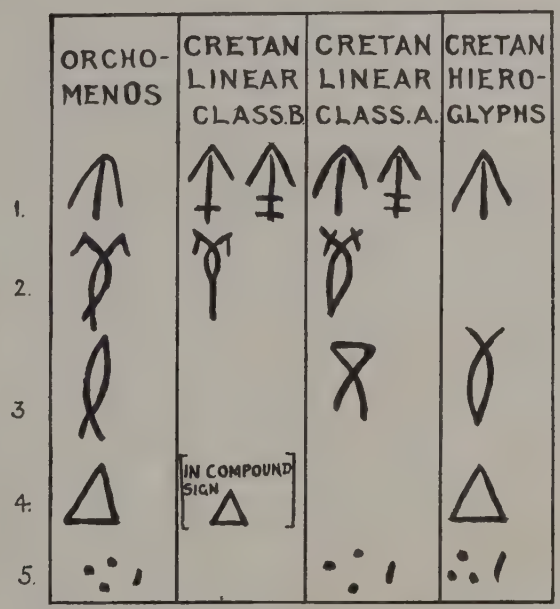


Fig. 32 (Table I). Signs on vase from Orchomenos compared with Cretan.

signs[1] (Fig. 31). The signs are painted in red on the body of the vase, and they show very distinct divergences from the script of Class B in use in the later Palace at Knossos. The third sign of the vase is altogether absent from it, though it shows some analogy with a character belonging to Class A. In some respects, indeed, as will be seen from the comparative Table (Fig. 32), the closest resemblance is presented by certain graffito forms of the earlier hieroglyphic script of Crete.

its indigenous character.

[1] H. Bulle, *Die Woche*, 1904, Heft 5, p. 216. Dr. Bulle, it will be seen, goes a little beyond the mark in saying that the script is identical with that of Knossos. He is referring apparently to the Linear Class B. Rather, it is a very nearly related branch of the same family.

It also appears that the numeral signs ∴ | which follow the inscription, answer to those of the hieroglyphic system[1] and to the earlier documents of the Linear Class A. According to these they would signify 31—a sum which, in the later inscriptions of the Linear Class A and throughout Class B, is indicated by ≡|. This 'Minyan' type of linear script, of which a fragment has been here preserved for us, seems then to have had a considerable independent history. The supposition that the stirrup-vase itself is a late importation from Minoan Crete is, indeed, contrary to all probability. Rather we may see in it a remarkable indication that the tradition of the early diffusion of the Art of Writing in Boeotia by 'Kadmos' possesses a real kernel of truth.

Its signs fit on to earlier Cretan systems.

The fact that the Minyan signs and numerals on the Orchomenos Vase fit on rather to the earlier systems of the Cretan script than to the Linear Class B which was in vogue at Knossos during the latest Minoan Age is not the only phenomenon of the kind on the Mainland side. In a chamber tomb of the Lower Town of Mycenae, belonging to the borders of the Second or Third Late Minoan Period, Dr. Tsuntas discovered two plain clay amphoras of Egyptianizing form, the handle of one of which was engraved with a group of three linear signs[2] (Fig. 33). Of these the first is common to both the advanced linear scripts of Crete, but the second is a characteristic sign of Class A, and the third only slightly differentiated from another sign exclusively confined to that system. On the handle of another similar amphora from the Tholos tomb of Menidi[3] (Acharnae), belonging to the same late Period, was engraved the sign ⋕, identical with the Cypriote *pa*, which also belongs to the same Cretan system.

Sign-group on vases from Mycenae: evidences of Mainland type of script.

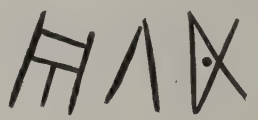


Fig. 33.

We have here, therefore, the evidence, scanty as yet, it is true, but highly significant, of the existence at Mycenae itself and perhaps in Attica during the latest Minoan and Mycenaean period of a system of script which fits on to a Cretan signary of distinctly earlier date. These inscriptions, therefore, seem to have been engraved in Greece proper and not to have been imported from any contemporary Cretan centre.

The remarkable inscription cut on the handle of a stone vessel found by Tsuntas in the ruins of a house on the Acropolis of Mycenae[4] leads to less certain results (Fig. 34). The first sign ⋔, however, is again characteristic of the Minoan Class A. The second sign is obviously pictographic in character, representing an instrument. To these may be added two incised characters (Fig. 35) on a bronze axe hammer obtained by me from Delphi.[5] The upper of these signs somewhat resembles a picto-

[1] See below, Part II.

[2] Tsuntas, Μυκήναι, p. 213, and p. 214, Figs. 1, 2; *Cretan Picts.*, &c., p. 4 [273], Fig. 2 (reproduced in Fig. 33).

[3] Tsuntas, loc. cit. On another amphora handle from the same tomb was incised a character resembling the Greek Π, which does not occur in the Cretan signaries.

[4] Tsuntas, Μυκήναι, p. 214, Figs. 3, 4; better, Tsuntas and Manatt, *Mycenaean Age*, p. 269, Figs. 238, 239, from which Fig. 34 is taken. The stone vessel itself resembles Cretan examples.

[5] *Cretan Picts.*, &c., p. 11 [280], Fig. 7.

graph of an aquatic bird, which occurs in the Minoan hieroglyphic series.[1] The fountain spout in the form of a lioness's head, referred to above, is by itself sufficient proof of a very direct connexion between Delphi and Minoan Crete.

Break up of Minoan power.

So far as Crete is concerned we are justified in concluding that, whether owing to some blow from without or to some upheaval from within, or, what is more probable, to both causes combined, the centralized Minoan power, of which the great Palaces are the speaking record, was at this time broken up. That a considerable political change had now been wrought may be deduced from the fact that the Kefts, the leading representatives of the Minoan power of the middle and latter part of the Eighteenth Dynasty, entirely disappear from the Egyptian records.[2] Among the names of the Viking hordes who now pour forth from their Aegean homes, the Tsakara and Purasati or Pulasati appear as prominent members of the Philistine Confederacy, to which the latter in all probability gave its name.

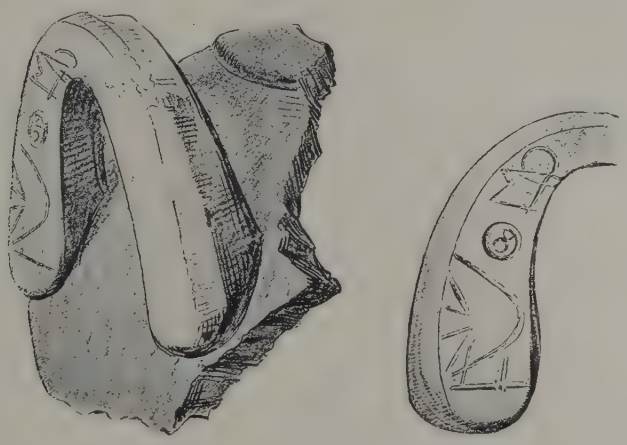


Fig. 34. Part of stone vessel from Mycenae with inscription on handle.

Fig. 35. Signs on bronze axe hammer, Delphi.

One of the results of the flourishing period to which the Cretan Palaces, earlier and later, were due had been no doubt a great increase in the population. Crete had not only become in a true sense the land of the 'Hundred Cities', but of the thousand villages.[3] Remains of settlements belonging to the latest Minoan Age are continually coming to light in the remotest glens and mountain fastnesses. With the fall of the central government, however, much of the trade on which the most populous districts must have depended was inevitably ruined. What, for instance, must have become of the purple-fisheries or of the oil-export to Egypt—perhaps the principal source of Minoan wealth—when the sea was no longer policed? The island no doubt was unable to support the population contained by it. With the break-up of the Minoan sea power—an inevitable consequence of the political chaos—and the pressure of impoverishment on an over-populated area, the more enter-

[1] See below, Part II, § 9, No. 81. [2] H. R. Hall, 'Keftiu and Peoples of the Sea,' *B. S. A.*, viii. pp. 157 seqq.
[3] See *Prehistoric Tombs of Knossos*, pp. 108, 109.

prising spirits in the different districts would be impelled by their growing needs to seek outlets oversea.

Impulse from Mainland side.

Towards the close of the Late Minoan Age an impulse from the Mainland side no doubt gave an additional impetus to this movement. There the representatives of the kindred stock, to which the parallel civilization of Mycenae seems to have owed its original development, were themselves in a hard case. That they had been themselves by this time largely Hellenized by a surrounding 'proto-Greek' population, later represented by the Arcadians, is extremely probable. It is certain that these owed a manifold debt to the older stock. The abiding traditions of the Arcadians, indeed, whether in the Peloponnese or among their colonial offshoots in Italy[1] and Cyprus, show how much they had taken over, especially in the religious sphere, from the Minoan World. Both these more old-established elements were now pressed by the Achaean tribes, whose oldest records point to Northern Greece. The first effects of these invasions may well have been to give a spur to 'Mycenaean' colonization in its narrower sense. But the Achaean conquerors seem rapidly to have englobed and assimilated the earlier elements of the Peloponnese. How large a part of the 'Mycenaean' civilization they themselves took over from the earlier inhabitants is sufficiently proved by the living record preserved to us in the Homeric poems.

Pressure due to Achaean invasions.

It is probably not unconnected with the new racial torrent from the North which finally resulted in the Dorian Conquest of the Peloponnese that the Achaeans were in turn compelled themselves to take part in the movement oversea.

Akaiuasha-Achaeans: their oversea enterprise and expansion.

It is significant that at the close of this period—two generations later than the Purasati and their fellows—there appear, among the Viking tribes that now come to the fore in the Egyptian records, the Akaiuasha, who, from De Rougé's time onwards, have been generally identified with the Achaeans. The Akaiuasha first make their appearance in the fifth year of Rameses III—that is, about 1197 B. C.—in company with Libyan and other confederates,—as taking part in a combined invasion of the Western parts of Lower Egypt. It results at any rate from Greek tradition that the Achaeans about this time took the lead in a great movement of expansion oversea, of which indeed the echo still resounds to us in the Tale of Troy.

That representatives of the older Minoan stock followed in the train of the Achaean leaders is probable enough. It is certain at any rate that in Crete itself, as is seen from the foundation sagas and names of a series of Cretan cities,[2] Achaean expansion was partly at the expense of the older inhabitants. There arose a Cretan Mycenae, and Lampa claimed Agamemnon as the founder. We have now reached the borders of the transitional 'Sub-Minoan' Age, marked by the incipient use of iron implements. This is precisely the period when the Homeric poems—the apotheosis

[1] For the Minoan elements in the 'Arcadian' traditions of Rome I may refer to my *Myc. Tree and Pillar Cult.*

[2] See Fick, *Vorgriechische Ortsnamen*, pp. 6 seqq.

of Achaean enterprise—take their characteristic shape,[1] and the Idomeneus of the *Iliad* may be taken to reflect Achaean domination at Knossos itself. At the same time the Homeric poems themselves afford a convincing proof that the traditions of the earlier Minoan and Mycenaean culture lived on in that of the Viking race of Greece.

Colonizing movement throughout Mediterranean basin.

But we are at present more immediately concerned with waves of more purely Minoan expansion, some of which had long preceded this Achaean tide. There can be no question that the colonizing movement from the Aegean shores, one of the principal radiating points of which was Minoan Crete, began at a considerably earlier date. In Anatolia and Cyprus, in Canaan, in Egypt, in Sicily, and even in Spain, there are indications of intimate contact with the Minoan world, suggesting at least the existence of Cretan factories, and perhaps of even more extensive plantations, in those various regions, going back to the beginning of the Later Palace Period of Knossos, or even to the preceding Middle Minoan Age. The later swarms of emigration followed in the wake of earlier pioneers.

Was knowledge of Minoan script thus diffused?

This far-reaching diffusion of Minoan influence throughout the whole Mediterranean basin, of which the evidences are only gradually coming to light, has an intimate connexion with our present subject. For the possibility can no longer be excluded that the same agencies by which the products of Minoan art and industry reached distant lands and germinated there as colonial offshoots, may have diffused a knowledge of one or other of the Minoan scripts. In this connexion a summary survey of the wide field of Minoan and Mycenaean expansion beyond the Aegean area brings out a series of recurring phenomena of a suggestive kind.

I. § 8. MINOAN INFLUENCES ON THE ANATOLIAN SIDE

Non-Greek forms in Anatolian alphabets.

The well-established affinity between a very early element in the Cretan population and the Carians, and the further links of linguistic connexion between these again and the Lycians and other races of Southern and Western Asia Minor, suggest the question of Minoan influence in that direction. In that region, moreover, we find at a later date a series of alphabets, of which the Carian and the Lycian may stand

[1] Mr. Andrew Lang (*Homer and his Age*, 1906, pp. 176 seqq., and cf. 'Homer and his Critics', *Edinb. Rev.*, Jan. 1908, pp. 76 seqq.) has shown conclusively that the Homeric Poems belong to a stage of culture in which bronze is still used for swords, spears, and armour, while tools and implements are of iron. This corresponds with a distinct phase of which we have archaeological evidence. Thus in the Cypro-Minoan Tombs at Enkomi the weapons were of bronze, but small iron knives also occurred (Murray, *Excavations in Cyprus*, p. 25). In a tomb recently discovered in the north-west of the Peloponnese were L. M. III vases, bronze axes, and spear-heads, but an iron spear butt (*Man*, October, 1907, p. 156; Lang, *Edinb. Rev.*, Jan. 1908, p. 78). To suppose that Epic poets 'archaized' to the extent of recalling a particular transitional phase of bygone culture is absurd. The primitive artist, whether in words or colours, reproduces the society in which he lives. He does not 'archaize' at all. Moreover, an 'archaizer' would have made all bronze: tools as well as weapons. He could not have had the archaeological knowledge to carry out the distribution of the two metals as is done in Homer. The method in the Homeric usage was indeed long since recognized by Cauer and others. Iron, in short, is there because it always was there, and Mr. Lang has the credit of pointing out the distinct chronological import of the fact.

as examples, presenting various indigenous characters, the origin of which has not as yet been satisfactorily explained. The generally accepted view is that the Greek letters both of the Carian and the Lycian alphabets were introduced by the Dorian settlers of Rhodes,[1] but the indigenous characters with which they are associated cannot by any legitimate process of derivation be traceable to a Greek alphabetic source.[2]

Hittite influences considered.

We must, of course, never lose sight of the fact that large sections of the aboriginal Anatolian stock to which the Lycians, Carians, and their congeners belong, came, at least by the close of the second millennium before our era, within the sphere of the Hittite culture. It is true that, as we now know, one of the most ancient strongholds of the Hittite power, Boghaz Keui, identified by Winckler with Ḫatti, rose in the heart of Cappadocia, and its other principal sites, such as Ivriz and Bor (Tyana), Sendjirli, and Carchemish, lay away from the Mediterranean shores. It nevertheless permeated the old Phrygian area, and, as the Niobe of Mt. Sipylos attests, pushed its way westwards to the Aegean. In parts at least of Cilicia, moreover, it also embraced an old Carian population, and the royal name Tarkutimme of the bilingual Hittite-Assyrian seal[3] belongs to this latter element. Still further to the East, in the old kingdom of S'am'al, the monuments of Sendjirli have illustrated a similar phenomenon, and two of the last kings of that region, belonging to the period of Assyrianization in the eighth century B.C., bear the name of Panammû,[4] which appears in a Hellenized garb as Παναμύης in Caria and Pisidia.[5] The first element of this has indeed a special interest, as it recurs in Panámaros, the name of one of the Curetes and of the Carian Zeus.

Hittites and Carians.

It is still by no means clear, however, that the supposed Hittite language, seen in the tablets from the country of Arzawa found at Tell el-Amarna,[6] in that from Yuzgat,[7] and in the abundant documents of the same kind at present being brought to light by Winckler at Boghaz Keui,[8] belonged to the Carian group. Its linguistic features, so far as they are known, have suggested various comparisons, including

[1] The introduction of these Dorian forms into Lycia took place at an early date, since already by the date of the Abu Simbel inscriptions the Dorian colonists of Rhodes had taken over the alphabet of their Ionian neighbours.

[2] For the source of the Carian alphabet see Sayce, 'The Karian Language and Inscriptions' (*Trans. Soc. Bibl. Arch.*, ix. pp. 112-54), and cf. Kretschmer (*Einl. in d. Gesch. d. gr. Sprache*, pp. 381, 382). On the Lycian letters see Kalinka, *Tituli Lyciae*, p. 5, who, however, does not attempt seriously to grapple with the non-Greek forms. Such suggestions as the derivation of from , , and from , can hardly be regarded as convincing.

[3] 'The Silver boss of Tarkondêmos.' Sayce, *Trans. Soc. Bibl. Arch.*, vii. (1881), p. 297; Wright, *Empire of the Hittites*, pp. 165 seqq.; Hilprecht, *Assyriaca*, i. 117 seqq. (as against Jensen's view); and cf. Kretschmer, *Einleitung*, &c., pp. 362-4; see the Cilician, Lycian, Pamphylian, and Pisidian comparisons. The King Tarḫundarauš of Arzapi, who appears on the Tell el-Amarna tablets, bears another name-form of the same Anatolian class.

[4] E. Sachau, in *Ausgrabungen in Sendschirli*, i. pp. 58 seqq.

[5] Kretschmer, op. cit., p. 397 (cf. Ball, *Proc. Soc. bibl. Arch.*, 1888, p. 432). The first element in the word is also found in the Carian, &c., personal names *Panýassis* or *Panýasis*, and *Panáblêmis*.

[6] J. A. Knudtzon, *Die zwei Arzawa-Briefe*, &c., *mit Bemerkungen von S. Bugge* (1902).

[7] Sayce and Pinches, 'The Tablet from Yuzgat' (*Publication of the Liverpool Institute of Archaeology*).

[8] H. Winckler, 'Vorläufige Nachrichten über die Ausgrabungen in Boghazkioï im Sommer 1907,' *Mitth. d. D. Orientgesellschaft*, Nr. 35.

Aryan.[1] The inclusion, nevertheless, of so many outlying sections of the old Carian stock within the borders of the Hittite Empire has naturally led to the attempt to derive the non-Hellenic element in the alphabet of Southern and Western Anatolia from the Hittite script, and even to connect with it the Cypriote syllabary.[2] But, except in a few cases, the correspondences are not convincing, and such derivations as from can hardly be regarded as satisfactory. On the other hand, it is to be observed that the South-Western part of Asia Minor—including the later Caria and Lycia—seems to have been very little penetrated by Hittite influences. In this direction, outside Cilicia, Hittite monuments at present fail us, and there is good warrant for believing that Hittite influence did not assert itself in an intensive form within this area.

Hittite derivations of Anatolian letters not substantiated.

May we perhaps conclude that throughout at least the maritime tract of Southern and Western Asia Minor there may have been some counteracting influence from the Aegean side? The Phaestos Disk even suggests that an independent civilization parallel to the Minoan may have developed itself in this region at an early date. That in the latest Minoan Age Aegean domination of some sort was exercised over parts of the Western Anatolian coastland is sufficiently proved by the 'Mycenaean city' of Hissarlik, and other remains of this period have come to light at Miletos[3] and elsewhere.[4]

Were these non-Greek forms of Minoan origin?

Traces of Minoan settlement in Asia Minor.

Extremely decadent traditions of the same kind are shown in the relics from the cemetery of Assarlik near Myndos, and there has been a general tendency to regard the Minoan or Mycenaean influence on the Anatolian side as very late and superficial. But it was not certainly from far afield that the Phrygians derived their versions of the Lions' Gate motive as we see them at Arslan-Kaïa and elsewhere. The 'horned' sword type of the last brilliant age of the Knossian Palace[5] penetrated as far as Pergamon,[6] and a gem and an engraved ring, of the best period of Minoan glyptic art, exhibiting scenes of the *taurokathapsia*, have been found, the one at Priene, the other in the Carian interior.[7] It seems likely that, as the archaeological evidence accumulates, the Minoan element in Western and Southern Asia Minor will be found to be earlier and more deeply rooted than has been hitherto imagined.

Some of good period.

[1] Knudtzon and Bugge, op. cit. Sayce, op. cit., p. 51, adds the Mitannian group, in which case a remarkable Iranian element has now to be taken into account (cf. Eduard Meyer, 'Das erste Auftreten der Arier in der Geschichte,' *Sitzungsber. d. k. Pr. Akad. d. Wissensch.*, 9. Januar 1908). It is certainly surprising to find not only Iranian names of dynasts but the worship of Indra, Varuna, and Mithra established on the Euphrates by the end of the fifteenth century B.C.

[2] Sayce, in Isaac Taylor, *The Alphabet*, ii. p. 123; also in *Empire of the Hittites*, p. 178. These comparisons are reproduced with approval by Perrot, *Hist. de l'Art*, iii. 521. But Professor Sayce has since shown himself quite alive to the new aspects of the problem brought out by the discovery of the Minoan scripts.

[3] Sir W. Ramsay has made a collection of sherds from several Anatolian sites showing a large Late Minoan III ingredient.

[4] R. M. Dawkins, *Year's Work in Classical Studies*, 1907, p. 7. The later Ionian Miletos was traditionally a colony of the Cretan city of the same name, now Milatos —itself a prolific source of Late Minoan remains. But Mr. Hogarth failed to find a Minoan stratum at Ephesus.

[5] *Prehistoric Tombs of Knossos*, pp. 105 seqq.

[6] The author possesses a fine example of a bronze short sword of this type found in the neighbourhood of Pergamon.

[7] The gem, one of the finest existing glyptic works of this class, from the beginning of the Late Minoan Period, was formerly in the Tyskiewicz Collection: both this and the engraved ring, of gilded bronze, are now in my collection.

Traditions of Cretan settlement in Anatolia. Sarpedon in Lycia.

That over and above the pre-existing race affinities there was an actual colonial infusion in these regions from the Cretan side is in accordance with the persistent tradition of antiquity. Analogy might lead us to suppose that actual settlement followed here, as apparently in Canaan, in Cyprus, in Sicily and the far West, in the wake of earlier commercial intercourse. In Lycia, especially, the sagas relating to Cretan conquest under Sarpedon, the brother of Minos,[1] may well be found to have an historic kernel. The old Cretan town-names Aptara and Einatos repeat themselves in Lycia, and on its borders was both a mountain and a town called Daedala.[2] Minassos[3] in the Pisidian interior combines a topographical name-ending, familiar both to the Cretan and Anatolian branch of the old stock, with the root of Minôs, while Knôs—the patronymic of Knossos—appears in the lists of the Corycian cave-sanctuary.[4]

Evidence of local names.

New basis supplied for possible source of non-Greek elements in Anatolian alphabets.

In view of these abiding traces of old Cretan connexion with the Western and Southern littoral of Asia Minor, the discovery of the Cretan scripts must in any case be considered to open new possibilities as to the origin of the non-Hellenic signs in the Anatolian alphabets. If, as seems highly probable, actual colonial plantations from Minoan Crete existed in this region, would they not have brought with them, as the Minoan merchants did to Melos,[5] some knowledge of their writing?

The letter of Proetos to Lycian King.

When we recall the traditional relationship of the royal houses of Lycia and Crete, the well-known passage in the *Iliad* describing the letter of Proetos King of Argos acquires a new significance.

Proetos, the Homeric Potiphar, sends off Bellerophon to the King of Lycia—the language of which country he may be supposed to have learnt during his own exile there :—

> πέμπε δέ μιν Λυκίηνδε, πόρεν δ' ὅ γε σήματα λυγρά,
> γράψας ἐν πίνακι πτυκτῷ θυμοφθόρα πολλά,
> δεῖξαι δ' ἠνώγειν ᾧ πενθερῷ, ὄφρ' ἀπόλοιτο.[6]

That the *σήματα λυγρά*, written in a folding tablet, must be here taken to mean some form of writing cannot be doubted. On the other hand, the attitude of the poet towards them, as shown by the epithet *θυμοφθόρα*, is rather that of a more primitive stage of society in which the letters are regarded as possessing a magical power.[7]

The existence of the art of writing in Greece was known, then, to Homer, but coupled in a special way with a Royal House having Lycian and Cretan relationships. It may be observed that the closed tablets on which the characters were written,

[1] Herod. i. 173; cf. Hoeck, *Crete*, ii. 335 seqq. Kretschmer, op. cit., p. 371, inclines to the opinion that these traditions may be due to later Greek colonists from Crete, on the South coast of Asia Minor, of which there are some traces in Pamphylia. But since 1896, when his work was written, new points of view have arisen.

[2] Steph. Byz., *s. v.* 'The Cretan town' (Κρητῶν πόλις, Diodor. xviii. 44, 47; Κρητόπολις, Ptol.) in Pisidia may, of course, be a later settlement.

[3] Kretschmer, *Einl.*, &c., p. 394, and cf. Fick, *Vorgr. Ortsnamen*, p. 27.

[4] Hicks, 'Inscriptions from Western Cilicia,' *J. H. S.*, xii. p. 255; stone, viii. l. 3.

[5] See above, p. 35.

[6] *Iliad* vi. 168 seqq.

[7] Compare the judicious observations of Dr. W. Leaf, *The Iliad*, ad loc., and *Iliad* ii. 329, where *φάρμακα θυμοφθόρα* are 'magic potions'.

resembling, as Pliny has already noted,[1] the later *pugillares* or wax tablets, represent a decidedly advanced method of procedure. We have here, perhaps, a hint of the form in which much of the correspondence in the Knossian Palace was preserved. The closed wooden tablets have perished, but the clay seals, showing traces of the string with which they were secured, have been preserved by the hundred.[2]

Traditional letter of Sarpedon.

Similar traditions of the very ancient use of letters seem to have been preserved in Lycia itself. According to Pliny,[3] Mucianus, who was Consul in A. D. 52, 70, and 75, related that when Governor of Lycia he had read a letter preserved in a certain temple—the material being in this case papyrus[4]—which had been written by Sarpedon when at Troy.

Comparisons of Anatolian and Minoan signs.

How far then, in view of the new possibilities opened by the Cretan evidence, do the non-Hellenic letters of the Lycian and Carian group of alphabets answer to Minoan characters? The question has not failed to suggest itself to the most acute inquirers in this epigraphic field.[5]

The difficulty that besets any attempt at detailed comparisons is that we have no one standard signary of Minoan origin that covers the whole ground. The 'Conventionalized Pictographic' or 'Hieroglyphic' series is still incomplete, and it may be regarded as certain that many of the later linear signs had more or less pictorial prototypes (together with their graffito simplifications), of which examples have not yet been found. On the other hand, the two Linear types of Script, A and B, are to a great extent parallel, and overlap chronologically. There is a large common element, but also a number of forms peculiar to one or the other system. It is probable that they mark the separate usage of distinct dynasties or of the tribal elements that these represented. In addition to these, moreover, there seem to be traces of one or more affiliated systems having been current on the mainland side. It has also to be observed that several signs which already appear in a more or less linearized form on the graffiti of the hieroglyphic class, and seem there to be of fairly common occurrence, are not found in either of the later linear systems that we have at our disposal. It is possible, however, that such may have survived in some other linear series of Late Minoan date, and possibly also among signs in use in the Minoan colonies oversea, the tendency of colonial tradition being often, as is well known, extremely conservative.

It results from these considerations that comparisons based on the signs of the

[1] *H. N.* xiii. 21 *Pugillarium enim usum fuisse etiam ante Troiana tempora invenimus apud Homerum.*

[2] See above, p. 44, &c.

[3] *H. N.* xiii. 27.

[4] *Charta.*

[5] Already in a private communication addressed to me in 1895, after the publication of my work on the Cretan Pictographs, M. J. P. Six wrote: 'Je n'ai pas eu de peine à trouver toute une série d'analogies plus ou moins grandes entre les lettres lyciennes qui ne sont pas dérivées de l'alphabet gréco-phénicien, ou qui en diffèrent plus ou moins, et les formes linéaires des anciens hiéroglyphes crétois . . . Parfois l'analogie ne semblera pas suffisante, mais d'autres fois elle me paraît tellement évidente que j'oserais presqu'affirmer que quelques lettres lyciennes dérivent directement des hiéroglyphes crétois.' Further references will be found below to M. Six's suggestions. To-day, with the developed linear scripts before us, as well as the fuller materials for the hieroglyphic signary, the evidence is very much stronger. Professor Sayce has also shown a due appreciation of the comparative value of the new materials.

Minoan, Lycian, and Carian signs compared.

Minoan script must in their nature be somewhat eclectic. In the annexed comparative table of Lycian and Carian letters[1] (Fig. 36) and Minoan signs, the examples of the latter are taken from among the linearized hieroglyphic forms as well as from the two linear scripts.

Fig. 36 (Table II). Comparison between Lycian, Carian, and Minoan signs.

Value of correspondences considered.

It must, of course, be admitted that correspondences of characters of simple geometrical formation do not in themselves count for much. Slight modifications of Greek letters to suit new and somewhat variant sounds may also have occurred

[1] The Lycian forms are given with Kalinka's values from his table, *Tituli Lyciae*, pp. 7, 8. The remarkable forms of O (8, 9) were supplied me by M. J. P. Six (see below). The Carian letters are from Professor Sayce's table, *Trans. Soc. Bibl. Arch.*, ix. 139. The larger capitals indicate the probable values of the letters. The smaller capitals refer to the Cretan scripts in which the signs preceding them are found. P = Conventionalized Pictographs or Hieroglyphs; A = the Linear Series A; B = the Linear Series B.

in certain cases. There is no difficulty in supposing that one or other of the forms of the Lycian Ẽ, as seen in No. 2 of the above table, may have arisen as differentiated versions of Y. Other types, however, are of greater value. The second of the Carian signs for SS.,[1] 卅, answers to a character that is found both in the hieroglyphic and linear scripts of Crete. The equivalence of the Lycian X with M̃ led M. J. P. Six to the conclusion that the versions of the sign, so closely resembling the Minoan pictograph, that appear on early coins of Miletos[2] represent the first letter or syllable of the town-name. This result has a special interest when it is remembered that the old Carian Miletos claimed to be a colony of the homonymous Cretan city, and that Late Minoan remains have come to light there. The forms of the Lycian U, given under Nos. 8 and 9,[3] also clearly recall the Cretan 'eye'-sign, the linearized degenerations of which can be traced through all the variant systems of the Minoan script. Typologically these Lycian forms go back to a stage antecedent to any known version of the Phoenician *'ain*.

Primitive linear signs of Hissarlik, &c.

It might be urged that the signs of the Anatolian group of alphabets that do not seem to belong to the Greco-Phoenician series were in fact supplied by some indigenous system of writing, parallel to the Minoan, which had been independently evolved by the old Carians and their kin. That a very early family of signs of the 'primitive linear' class existed in this region we know from the graffiti of Hissarlik. The phenomenon itself, indeed—as pointed out above[4]—is of universal occurrence. But from the rude scratchings of primitive pictography it is a far cry to a systematic form of script, such as we find in Crete in a highly developed form, with signs that were used as syllables, or even letters, as well as ideographs. That the same elements of primitive writing as underlie the developed scripts of Crete existed in a very similar guise among the kindred populations of Southern and Western Asia Minor is in itself highly probable. The discovery of the hieroglyphic Disk from Phaestos exhibiting characters distinct from those of the Minoan system has now, indeed, opened out new possibilities on this side. Should it prove to have been the work of some neighbouring people from the Anatolian coastland it would itself be sufficient proof that at a very early period a high civilization had grown up in that maritime region, interrelated no doubt with the Minoan but standing to it in a parallel rather than a dependent relation. The future course of archaeological investigation will no doubt elucidate the interesting question. Meanwhile, however, it is well to remember that the Phaestos Disk at present stands alone.

Represent wholly different stage in evolution of writing.

[1] This sign, with its three upright strokes, is clearly to be distinguished from *Samek*, where they are horizontal. It seems to survive in the ⊓ of the Mesembrian coins. It is seen, as pointed out by Ramsay, in the Lygdamis inscription of Halicarnassos (*I. G. A.* 500), where it occurs in two Carian names. It is also found on Naukratite sherds (*Naukratis*, I, Pl. XXXII), the Teos inscription (Roehl, *I. G. A.* 457 B), and, as Mr. Hogarth informs me, on the gold plate discovered by him at Ephesus (*Archaic Artemision*, ch. vi, ad fin.).

[2] The first of the two forms given under No. 20 occurs on the electrum coins of Miletos of the Phoenician standard (B. M. Cat., *Ionia*, Pl. III, 5, 6). The simpler type placed after the other under No. 20 is found on another electrum piece referred by Six to Miletos (B. M. Cat., *Ionia*, Pl. I, 5), dating from the sixth century B.C. Head, op. cit., p. 2, suggests the same attribution. On later coins of Miletos the civic name is indicated by the monogram Ⲙ.

[3] No. 8 coupled with Σ appears on the body of a boar. (Babelon, *Perses Achéménides*, Pl. XI, 4, p. 64, 'vers 460 av. J-C.') The variant No. 9 appears (also with Σ) on the reverse of the same coin.

[4] See above, pp. 3 seqq.

I. § 9. MINOAN CYPRUS AND THE INSULAR SCRIPTS

Minoan colonization of Cyprus.

Of a Minoan colonial influence, accompanied by parallel phenomena in a more intensive shape than is to be found on the neighbouring Anatolian coastlands, we have a still more striking example on the same side in the case of Cyprus. Here the aboriginal element represented by Kinyras the son of Sandon, the Teukrids of Salamis, and by such local names as Tamassos and Nemessos seems to have been identical with that of the neighbouring Cilician littoral, and belonged therefore to the Eastern branch of the same ethnic group as the indigenous population of Crete.

The later Cypriote syllabary.

In Cyprus, too, at a later date, the Greek-speaking inhabitants are found possessed of a complete syllabary of characters distinct from the Greco-Phoenician, containing certain forms that closely resemble some of the non-Greek signs of the Anatolian alphabets. At first sight the evidence might be thought to point to the ultimate derivation of the Cypriote syllabary from a very ancient signary which had been the common possession of the old Carian stock on the mainland side as well as in the island.

Early culture of Cyprus inferior to Cretan.

There would, on the face of it, seem to be no good reason why Cyprus itself should not have given birth to an early civilization on a level with that of Minoan Crete. Its geographical position, as near the Syrian as the Anatolian coast, brought it almost to the gates of the old Oriental monarchies, and influences from this side are attested not only by the appearance here at a very remote period of the cylinder type of seal, but by the occurrence of more than one of the Babylonian originals from which both the cylinder form itself and the rude designs on the native Cypriote examples were ultimately derived. There were nearly equal facilities for early contact with Egypt, which to the primitive Cretans had been of such stimulating effect. The rich stores of copper, moreover, exploited betimes by the Cypriotes, makes it natural to suppose that the trade relations of the island would have been widely diffused throughout the East Mediterranean lands from a remote period. Of such influence no doubt there are traces in many directions.[1] It penetrated to Hissarlik and even to the Danubian Valley, and the early wares of Cyprus have themselves been found on the Acropolis at Athens,[2] at Therasia,[3] and elsewhere in the Aegean area.

First high civilization reaches Cyprus from Minoan source.

Yet despite its mineral wealth, despite its position, within sight of the Lebanon and almost opposite the Nile mouths, the indigenous Bronze Age culture of Cyprus was incomparably behind that of Minoan Crete. It was from a Minoan source that the first elements of high civilization reached its shores. The first signs of

[1] For summary indications of the range of early Cypriote influence see J. L. Myres, *Catalogue of the Cyprus Museum*, pp. 17, 18. More recently Freiherr von Lichtenberg, in his 'Beiträge zur ältesten Geschichte von Kypros' (*Mitth. d. vorderasiat. Ges.*, 1906, 2), has done much to illustrate the connexions between the early Cypriote culture and that of the Troad, the Danubian Valley, and the Alpine regions. Much material bearing on the same relations had already been collected by Much (*Kupferzeit in Europa*) and Hoernes in his *Urgeschichte der bildenden Kunst in Europa.*

[2] Myres, op. cit., p. 17.

[3] Furtwängler u. Loeschke, *Mykenische Vasen*, p. 22; Atlas, Pl. XII, 80.

this influence are to be seen in imported fragments of the fine polychrome ware of the 'Middle Minoan' class.[1] By the middle of the ensuing Late Minoan Period, however, there appear widespread indications of what can only be regarded as a settlement on a large scale from the Aegean side, in all probability, in part at least, from Crete itself. The handle and fragments of the fine bronze cauldron of the Cesnola Collection,[2] with its reliefs of running bulls and lion-headed demons pouring libations, compares both in style and subject with the best work of the later Palace at Knossos. A lentoid bead-seal exhibits a design of a kind of Cerberus with human legs, belonging to the same family as the Minotaurs, the man-lions, and man-stags of the same Cretan school, while the objects of faience ware—such as the rhyton in shape of a horse's head of perfect naturalism[3]—fit closely on to the masterpieces of the same artistic craft from the royal Minoan factory. Side by side with survivals of the old barbaric products of the Cypriote potters we now note the wholesale intrusion of new ceramic types of finer fabric, which in their paste, glaze, and decoration are inseparable from the Late Minoan and Mycenaean class. Relations with the Nile Valley suddenly become intimate, and the reflex action from Egyptian sources influences the subsequent course both of the Cypriote artistic fashion and also of the religious iconography, as illustrated especially by types having relation to the cult of Hathor.[4] There is, no doubt, also a certain fusion of the earlier Oriental traditions—witness the gross clay idols and the retention of the cylinder type of seal, though this becomes the field of fantastic and decorative designs in striking contrast to the wooden productions of the old Cypriote engravers.

Colonial school of Cypro-Minoan art.

The important point to observe, as regards our present subject, is that in all this, over and above the evidences of direct importation from Cretan or other Aegean sources, there are repeated indications of the growth of a local or colonial School, to which the name Cypro-Minoan, or in its latest phase Cypro-Mycenaean, can best be applied. Thus among the ceramic fabrics, together with certain imported vessels,[5] there appears a wholly new class of painted vases,[6] representing spotted bulls, pugilists and chariot scenes, peculiar to the island, though at the same time the designs must be regarded as offshoots of the Minoan School. But the highest production of the indigenous Cypro-Minoan artificers—or on a par, at any rate, with their faience fabrics—are the ivory reliefs, such as those of the mirror handles[7] and the hunting scenes on the draught-board from Old Salamis,[8] which represent the fine tradition of the Cretan Palaces in a somewhat orientalizing form.

[1] Myres, op. cit., p. 18.

[2] Perrot et Chipiez, *Histoire de l'Art*, &c., iii. pp. 794, 795, Figs. 555, 556.

[3] A. S. Murray, *Excavations in Cyprus*, Pl. III.

[4] I have called attention to this aspect of the religious subject on the 'Cypro-Minoan' cylinders in my *Myc. Tree and Pillar Cult*, pp. 50 seqq. (cf. *J. H. S.*, vol. xx, pp. 148 seqq.).

[5] As, for instance, the Late Minoan III 'stirrup-vase' with octopus designs, figured in *Excavations in Cyprus*, p. 74, Fig. 128, which is undoubtedly of Cretan fabric.

[6] These were, apparently, cinerary urns. But the chariot and hunting scenes, &c., represent a tradition from the Late Minoan painted sarcophagi (*larnakes*). A similar phenomenon recurs in Crete in the 'sub-Minoan' Age.

[7] *Excavations in Cyprus*, Pl. II.

[8] Ibid., Pl. I.

Reasons, largely based on the Egyptian evidence, have been given by me elsewhere[1] for concluding that the contents of the graves excavated at Enkomi or Old Salamis, in which this local Cypro-Minoan Art is already seen in a fully developed stage, belong in the main to the fourteenth and the first half of the thirteenth century B.C., in other words, to the end of the Palace Period at Knossos, and to the ensuing 'Third Late Minoan' Age.

Inscribed balls from late Cypro-Minoan cemetery of Enkomi.

To this period belong some remarkable relics which show that the settlers had brought with them not only the artistic traditions of their Aegean homes, but a form of Minoan script. In connexion with one of the Enkomi tombs were found three balls of clay incised with linear signs (Fig. 37), which do not as a whole belong to the ordinary syllabary in use among the later Greek-speaking population of the island, though, as may be gathered from Table III below, they show a partial conformity with it. When the discovery of these characters first came to my knowledge it was already possible to point out some close resemblances to the Cretan linear

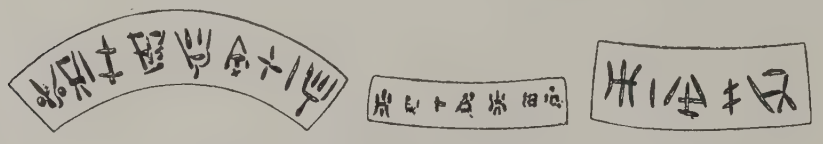


FIG. 37. Inscriptions on clay balls from Enkomi.

FIG. 38. Engraved ring, Enkomi.

script.[2] But the materials that have since then accumulated, and in particular the revelation of the existence of the two parallel linear signaries A and B, have supplied new fixed points of comparison. Besides the clay balls there was discovered in a typical Cypro-Mycenaean tomb at Larnaka a gold ring, the besil of which is engraved with characters common alike to the Minoan and the later Cypriote script (Fig. 38).[3]

Inscribed ring from Larnaka.

Cypro-Minoan signs compared with Cretan.

The number of Cypro-Minoan characters thus ascertained is fifteen. From Table III, where they are put together (Fig. 39), it will be seen that ten of these present an almost absolute conformity with Minoan types of the Linear Classes A and B. In addition to this No. 5 may easily represent a slightly simplified version of the common 'cup' sign, while No. 9 shows considerable analogy with the equally frequent 'hand' with three fingers and thumb, especially the variety seen in Class A—except that the thumb is here rendered upright. The prototypes, moreover, of the remaining three characters may easily be found in the hieroglyphic Cretan series: No. 6 goes back

[1] 'Mycenaean Cyprus as illustrated in the British Museum Excavations' (*Journ. of the Anthr. Inst.*, vol. xxx. pp. 199 seqq.). Among the early elements of special chronological value may be mentioned a faience scarab of Queen Tyi, a silver vase of the Vapheio type, and a gold inlaid pectoral of about Akhenaten's time. A scarab of Rameses II's time (c. 1300–1234), found in a tomb at Curium with vases similar to those of the period of partial occupation at Knossos, suggests the lower limit. (Cf. Petrie, *Trans. R. S. Lit.*, vol. xix. p. 73.)

[2] *Excavations in Cyprus*, &c., p. 27, Figs. 58, 59, 60; and cf. my *Myc. Cyprus*, &c., p. 217.

[3] *Myc. Cyprus*, p. 216 and Fig. 13. The tomb was discovered on the Tekke site in 1898 by Mr. H. B. Walters. The *crux ansata* or *ankh* sign may be simply a religious symbol, in which sense it is of such frequent occurrence on Cypriote coins.

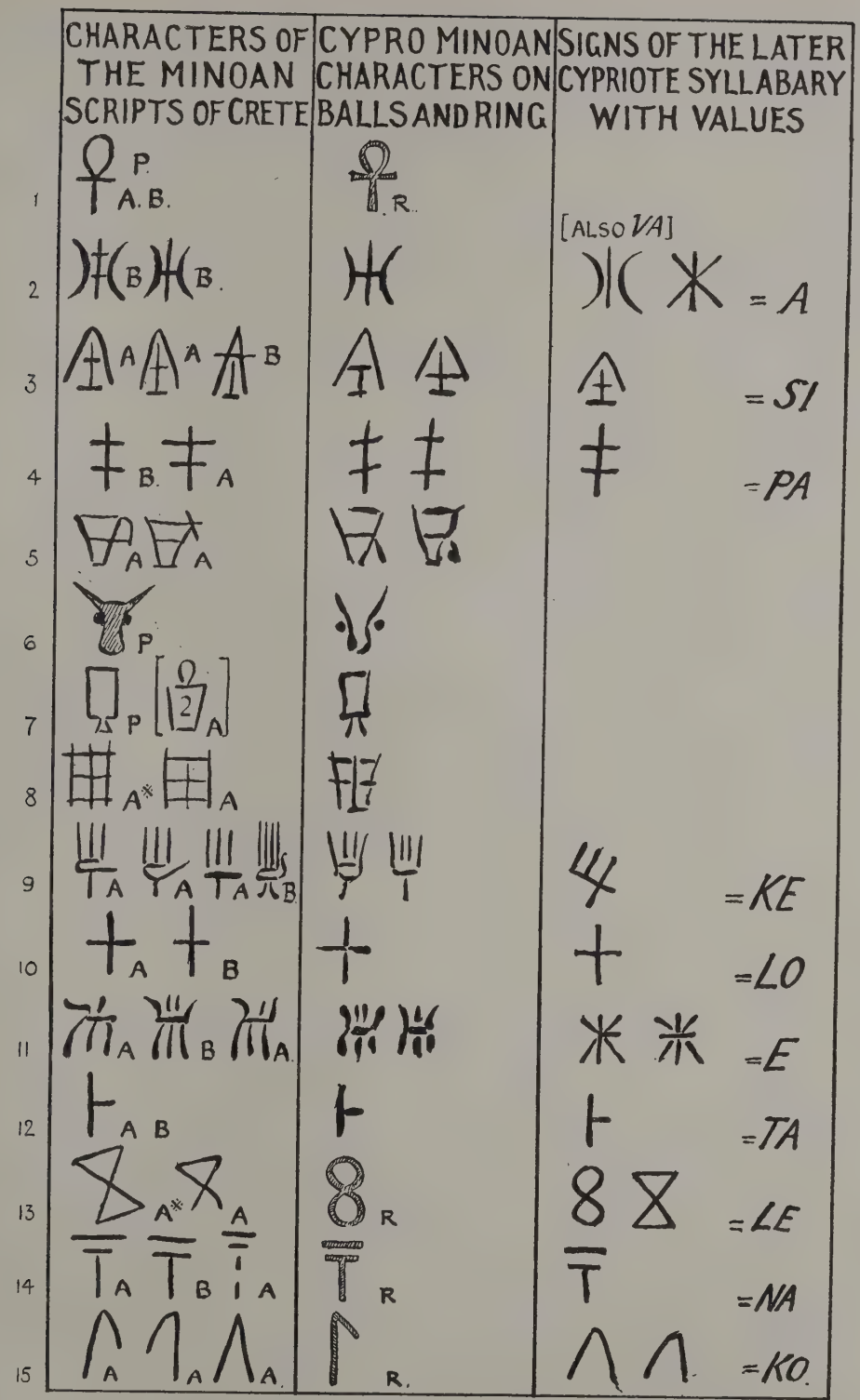


FIG. 39 (TABLE III). Comparisons of Minoan signs of Crete and Cyprus.

to certain quasi-pictorial forms of the ox's head; No. 7 is only a slight simplification of the 'mallet' or 'beetle' sign, and No. 13, angularized (as we see in the alternative form of the later Cypriote *le*), also finds its Cretan counterpart.

Cautious as it is necessary to be about founding too definite relationships on the resemblances of signs occurring in different areas, the agreement here observable between the Cypriote and the Minoan forms is of such a kind as will probably convince the most sceptical of a common origin. This conclusion, moreover, is greatly strengthened by the fact that the Cypriote characters in question appear in connexion with the remains of an extensive Minoan colony in the island. There are, indeed, some indications that there existed among the indigenous population of Cyprus at a still earlier date primitive linear signs analogous to those of 'Early Minoan' Crete, ideographic in character and probably not yet possessing a syllabic value. Professor Sayce, for example, has called attention to a group of five such occurring on a primitive steatite cylinder from the 'Copper Age' cemetery of Hagia Paraskevê,[1] and belonging to a period which considerably antedates that of the Minoan connexion with Cyprus. But such correspondences as those seen under Nos. 2, 3, and 11 of Table III sufficiently demonstrate the real relationship of the Cypriote forms there given with the advanced linear scripts of Crete. We have here, in short, the evidence of a colonial Cypro-Mycenaean system bearing much the same fraternal relation to the Minoan linear Classes A and B as they do to one another. It is to be observed that No. 2 is only found in Class B, and Nos. 8 and 15 only in Class A. It is quite possible that certain divergences which are seen in the Cypro-Minoan or Cypro-Mycenaean signs may be due to the influence of linear forms already in existence among the indigenous population such as are seen on the cylinder referred to.

Primitive linear signs in Cyprus.

The interesting question remains—In what relation does the Cypro-Minoan signary, and, in a more general way, the advanced linear scripts of Crete to which it is related, stand to the syllabary in use among the Greek-speaking inhabitants of Cyprus at a much later period?

Minoan and Cypro-Minoan signs compared with the later Cypriote syllabary.

This question has a crucial import, since, should the affinity be ascertained, an *a priori* probability would arise that the phonetic values of the Cypriote characters might supply a clue to a certain number of those belonging to the Minoan scripts.

In the third column of Table III (Fig. 39) have been set down a series of signs belonging to the later Cypriote syllabary presenting points of comparison with the Cypro-Minoan forms. That several lacunas should occur is what would naturally be expected, considering that the number of the characters of the Cypriote syllabary

[1] *Proc. Soc. Bibl. Arch.*, xxvii, 1905, p. 254 and Plate XI. Sayce reads the signs *Mo-to-ta-se*, and observes, 'The existence of the Cypriote syllabary is thus taken back to an age contemporaneous with the Kretan linear characters.' The cylinder itself, however, is of the usual primitive class, and the Hagia Paraskevê cemetery where it was found belongs to an earlier age than that of the advanced linear scripts of Crete. It is probably contemporary with the class of Cretan seals presenting primitive linear signs, and belongs to a time when Cyprus and Crete were still at most very remotely connected. The signs themselves are of simple geometrical formation, and must be regarded as of independent Cypriote origin.

is only fifty-four, whereas the number of those in the Cypro-Minoan signary, if we may judge from the parallel Cretan systems of Classes A and B, would have been about double that number.

The fifteen Cypro-Minoan signs of which we have a record are in any case only a small fragment of the whole series which we must assume to have existed. A fuller field for comparison with the signs of the later syllabary of Cyprus is supplied by the two advanced linear scripts in use in Minoan Crete itself. If to these be added some linearized versions of signs of the hieroglyphic class which, though they do not happen to have been included in either the Cretan linear Class A or B, may very well have survived in the colonial signary of Cyprus, it will be found that about two-thirds of the later Cypriote characters bear resemblances to Minoan forms.[1] It is more convenient, however, to reserve the detailed comparison till we come to analyse the advanced linear scripts of Crete.

Problems suggested by Cypriote scripts.

A few general considerations affecting the difficult problems suggested by the Cypriote scripts may nevertheless not be inopportune.

In the first place it should not be forgotten that though the Cypriote syllabary makes its appearance among the Greek-speaking population of the island at a comparatively late date, the fact alone that they used this more cumbrous system of writing and not the Greco-Phoenician alphabet sufficiently indicates that it had been a very early possession. The occurrence in the Greek alphabet of certain forms typologically older than the earliest known examples of the equivalent Phoenician characters tends to show that the alphabet had been introduced into Greece before the beginning of the ninth century B.C. We must therefore infer that the Greek settlers in Cyprus had left their mother-country at least as early as the tenth century before our era. Already by the dawn of history an indigenous epic cycle, the *Cypria*, had grown up in the island.

Greek colonization of Cyprus precedes diffusion of Phoenician alphabet in Greece.

Archaic characteristics of Cypriote Greeks.

The Greeks of Cyprus spoke, as is well known, an archaic dialect akin to the Arcadian, and their prevailing traditions connected them with pre-Dorian Laconia, Argos, and parts of Achaia.[2] Their cult of the aniconic Apollo of Amyklae[3] and his female associates[4] is the direct offshoot of that of the Mycenaean civilization, while in the Lady of Paphos, with her Dove and Pillar Shrine, and Aphrodite Ariadnê,

[1] To these materials may be added a perforated pendant of green steatite from the isle of Siphnos, of irregular form and archaic aspect, presenting six or seven characters of curiously Cypriote aspect. It apparently represents some local variety of 'Minoan' script. (See *Cretan Pict.*, &c., p. 18 [287], Fig. 19, p. 19 [288], and p. 84 [353].) It will be considered in vol. II of the present work in the section dealing with early examples of inscriptions belonging to the advanced linear scripts. This object was obtained by me in 1894, and is now in the Ashmolean Museum at Oxford.

[2] The name of the 'Achaean Shore' clung to the North coast of the island (Strabo, xiv. 6. 3), and a priestly caste in Cyprus preserved the name of Ἀχαιομάντεις (Hesych., s. v.; cf. Engel, *Kypros*, ii. 104).

[3] Paus. iii. 19. 2. The cult of the Amyklaean Apollo passed from the Greek to the Phoenician colonists of Cyprus, to whom he was known as *Resheph-Mikal*. (Cf. *C. I. S.*, Nos. 90–4.)

[4] Nonnos, *Dionys.* xliii. 6, and cf. Enmann, *Kypros und der Ursprung des Aphroditecultus*, p. 36. The well-known columnar figure on the Spartan coin (B. M. Cat., *Peloponnesus*, Pl. XXIV, 1 and p. 121), formerly identified with the Amyklaean Apollo, has been shown by Furtwängler (*Roescher's Lexikon*, art. Aphrodite, p. 408) to represent his consort, the armed Aphrodite. (Cf. Farnell, *Cults of the Greek States*, ii. p. 701.)

whose sacred Grove was at Amathus, we see a very near relationship to the Mother Goddess of Knossos and Minoan Crete.

Were the Cypro-Minoan settlers Greek?

From all this it is evident that the culture brought with them into Cyprus by the Greek settlers was that of an element which had been long under Minoan or Mycenaean influence. We are bound therefore to face the possibility that they represented this culture in its undiluted quality, and that the Cypro-Minoan relics found in the tombs at Old Salamis and elsewhere belonged to colonists who were already Greek-speaking.

Such a conclusion, indeed, would carry us far, since it might fairly be taken to show that at least the Mainland representatives of Minoan culture, as seen at Tiryns and Mycenae itself, used the Greek language. In that case the script that the immigrants from the Peloponnese brought over with them to Cyprus, and of which we have a record in the clay balls and ring, would demonstrate the adaptation of the Minoan signs to the Greek language as early as the thirteenth or fourteenth century before our era, and, by implication, at a still remoter date. A reasonable deduction from this conclusion would be that the later Cypriote syllabary represents the direct outgrowth of this early system rather than some later attempt to harmonize Greek sounds with alien characters.

Much, no doubt, in ancient tradition would be explained by the hypothesis that the Mainland representatives of Minoan culture who have left their remains at Tiryns and Mycenae, though in their origin belonging to the same ancient stock as the Minoan population of Crete, had taken over the Greek speech at a comparatively early date from the mass of a subject population. That they were themselves, from the beginning, a comparative minority surrounded by hostile elements is sufficiently shown by the extensive fortifications of their towns, in striking contrast to the open cities of contemporary Crete. Their position was in fact analogous to that in which the later Minoan colonists included under the Philistine name found themselves in their new seats on the Canaanite coast. These latter came, no doubt, to a large extent, speaking a 'Minoan' language, but, though they did much to maintain their superior culture, a few generations sufficed to completely Semitize their speech.

Cypriote syllabary originally devised for a non-Hellenic speech.

It must in any case be recognized that the Cypriote syllabary itself has every appearance of having been originally devised for a non-Hellenic language, and that its adaptation to the Greek, at whatever date it took place, was of a cumbrous and inadequate nature.

There is nothing, however, either in the traditions of the Cypriote Greeks or in the character of their indigenous script, that compels us to carry the Hellenic colonization of the island as far back as the flourishing days of the Minoan Palaces.

Epic tradition favours late date for Greek

Epic tradition itself seems rather to favour a comparatively late prehistoric date for the Greek colonization of Cyprus. It is true that by the Homeric Age the fame of the Cyprian Goddess and her shrine had had time to establish itself in Greece. It is to be observed, however, that though in later days the Kinyrads, or priestly and royal race

of Paphos, bore such Arcadian names as Etevandros,[1] it is with Kinyras himself, who represents the older stock in the island and whose relations are rather to be sought on the Cilician side, that the Poet of the *Iliad* has to do. It is from this indigenous Cypriote prince, moreover, that Agamemnon receives the breastplate[2] with ribs plated with gold and tin and inlaid with *kyanos* that suggests traditional Minoan handicraft.

colonization in Cyprus.

It is certain that in legendary history the colonization or conquest of Cyprus took place after the fall of Troy. Though the story lies beyond the scope of the *Iliad* itself, more than one of the Achaean chiefs are traditionally made to direct their course from captured Troy to the Cyprian coast. Teukros founds Salamis; the Arcadian leader Agapênor New Paphos; the seed of Theseus Soloi and Chytroi. Agamemnon himself, according to one legend,[3] captures Amathus, and after driving out Kinyras and his people divides it among his followers, and the name of Aegisthos attaches itself to the royal house of Idalion.[4] It is perhaps noteworthy as indicating a comparatively recent conquest that in the *Odyssey* Dmêtor of the royal Argive race of Iasos, who had intimate relations with the Delta, is spoken of as 'reigning by force' (a recurring epic phrase) over Cyprus as a whole.[5] At the dawn of history we find the island broken up into a series of small principalities.

Greek foundation sagas.

There is a piece of Egyptian evidence which seems to indicate that several of the Cypriote cities known to later history, including some afterwards regarded as Greek foundations, were already in existence by the first quarter of the twelfth century before our era. This is the mention in the triumphal list of Rameses III, on a pylon of the Temple of Medinet Habu of names of cities, such as Salomaski, Katian, Sali and Ital, in which Brugsch[6] has very reasonably recognized the Cypriote cities of Salamis, Kition, Soli, and Idalion. It will be seen that, though Kition must be regarded as a Phoenician centre, three of these, namely Salamis, Soli, and Idalion, correspond with cities included in the Greek foundation sagas. They are, moreover, described as belonging to the Ha Nebu, a name which, though also used to include the Carians, is specially applied in later times to the Greeks.[7]

[1] For the Greek names of the Kinyrad Priest-Kings, from the eighth century onwards, see Enmann, *Kypros*, &c., p. 30, and compare Busolt, *Gr. Gesch.* (2nd ed.), p. 320, n. 5.

[2] *Il.* xi. 19 seqq. Cf. my *Myc. Cyprus*, pp. 213, 214. Breastplates are represented on a series of clay tablets with the linear script B from the Palace at Knossos. A Cypro-Minoan example is seen on an ivory mirror-handle from Enkomi (op. cit., p. 209, Fig. 5; from *Excavations in Cyprus*, Pl. II, 872 A).

[3] In the Cyprian poem of Theopompos; in *Photios*, 12; cf. Engel, *Kypros*, i. 228.

[4] An Aegisthos, king of Idalion, appears, under the form *Ikistusu*, among the tributary Cypriote princes on the inscriptions of the Assyrian kings Assurhaddon and Assurbanipal (G. Smith, *History of Assurbanipal*, p. 31; cf. Busolt, *Gr. Geschichte*, i. 322).

[5] *Od.* xvii. 442:

Αὐτὰρ ἔμ' ἐς Κύπρον ξείνῳ δόσαν ἀντιάσαντι,
Δμήτορι Ἰασίδῃ, ὃς Κύπρου ἶφι ἄνασσεν.

[6] *Hist. of Egypt* (Engl. transl., ed. 2, pp. 158, 159, and *Troy and Egypt* in Schliemann, *Ilios*, p. 749. Wiedemann, *Äg. Gesch.*, i. p. 500, n. 2, expresses doubts about these attributions. Cf. too E. Meyer, *Gesch. Äg.*, p. 319.

[7] The earliest direct mention of the inhabitants of a Cypriote town is contained in the Golenischeff Papyrus (see below, pp. 79, 80), describing the voyage of the Theban temple official Wen Amon, about 1100 B.C. The town where Wen Amon landed is given the name of *Alashia*, a general name for Cyprus, common to both Egyptians and Assyrians, which recurs in the Tell el-Amarna letters. The government of the place is in the hands of a Princess *Ḥa-ti-bi*, in which W. Max Müller detects a Phoenician name (*Mitth. d. vorderasiat. Ges.*, 1900, p. 26, n. 2). There are further indications of a very close connexion with Byblos. It looks as if some Phoenician plantation, perhaps at Kition, already existed at this time.

Successive waves of Aegean immigration into Cyprus.

In any case, however, it is clear, from the evidence supplied by the Cypriote remains themselves, that we have to do with more than one wave of immigration from the Aegean side. Certain types of objects found in tombs at Kouklia near Paphos and elsewhere betray a direct affiliation to forms representative of that later stage of culture which immediately succeeded the pure 'Minoan' and 'Mycenaean' in the Greek lands. The characteristic safety-pin with its high-stilted catch-plate is the immediate predecessor and prototype of the race of Greek Geometrical fibulas.[1] The peculiar shape and decoration of some of the vases correspond clearly with 'sub-Minoan' or 'sub-Mycenaean' examples from mainland Greece and the islands, including Crete. The form of iron sword that now appears in Cyprus is that of Greece and its Hinterlands, and has, besides, a Western extension on the Italian side. It is evident that on the very threshold of the Iron Age in Greece, about the beginning, that is the eleventh century before our era, a fresh current of immigration had set in on Cyprus from the Aegean side.

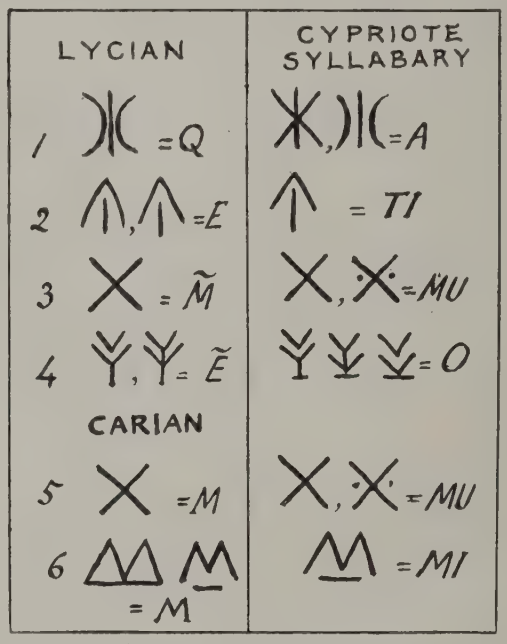


Fig. 40 (Table IV). Comparisons between Lycian and Carian signs and those of the Cypriote syllabary.

Conclusions: main Greek settlement in Cyprus at beginning of Iron Age. But partial settlement of Greeks in late Minoan times not excluded.

It is possible, therefore, that the first arrival of the true 'Arcadians' and their kin in Cyprus may have been due to a later tide of immigration following on the wake of an earlier colonization by Aegean representatives of the older stock. But, as already suggested, in so far as these earlier swarms consisted of 'Mycenaean' mainlanders, they may themselves have already to a great extent been Greek in speech. In that case the followers of Agapenor would not have arrived as total strangers in the island, and an element of transition would have been at hand which may easier explain their adoption of a Minoan signary.

Cypriote signs compared with Anatolian.

The further inquiry suggests itself: How far can the characters of the later Cypriote syllabary be brought into connexion with the non-Greek forms of the Anatolian alphabets?

That there are some close correspondences between the two will be seen from the above comparative Table IV (Fig. 40).

[1] Cf. *Myc. Cyprus*, &c., p. 294, and J. L. Myres, *Cat. of Cyprus Museum*, p. 34 (Paphos). The type is given by Perrot (iii, Fig. 595). A similar fibula was found with 'sub-Mycenaean' pottery in a tomb at Assarlık, Caria (*J. H. S.*, viii. 74, Fig. 17). Very similar types occur in Crete (H. Boyd, *Am. Journ. of Archaeology*, v. 136, Fig. 2). This form was common to the Aegean basin and Cyprus, but the subsequent evolution was very different in the two areas. A kindred type is found in Sicilian tombs of the same period (Colini, *Bull. di Paletn.*, 1905, pp. 45, 46, and p. 58, Fig. 155).

Six correspondences, four of Lycian and two of Carian characters with Cypriote forms, are shown in the above Table. In the case of Nos. 1 and 2 the phonetic value seems to be irreconcilably divergent in the two cases. Of No. 4 it may be said that the respective Lycian and Cypriote signs have a vowel sound. The ✕ form of *m̃* and *m*, on the other hand, given under Nos. 3 and 5, can hardly have a separate origin from the similar Cypriote sign signifying *mu*, and No. 6, the Carian *m*, closely resembles the Cypriote *mi*.[1]

I. § 10. CRETAN PHILISTINES AND THE PHOENICIAN ALPHABET

We have seen that the diffusion of Late Minoan settlements along the South-Eastern shores of the Mediterranean best explains the appearance of the pre-Hellenic forms in the Anatolian alphabets, while in Cyprus it unquestionably brought about the early introduction of a highly developed linear syllabary.

Minoan element in Philistine settlement.

But Cyprus was not the furthest goal of this colonizing enterprise from the Aegean side. It was rather, perhaps, the ἀφορμή for that further advance to the extreme South-East Mediterranean angle which was to attach the name of Palestine to a large tract of the Canaanite littoral. It must at any rate be regarded as a remarkable coincidence that the close of the same period is marked in Canaan itself by the appearance of a system of linear script, wholly unconnected with the Semitic cuneiform, but presenting many points of correspondence with the Minoan signaries—in other words, the Phoenician alphabet.

Coincident appearance of Phoenician alphabet.

Cherethim: Cretans.

The participation of a large Cretan contingent in the Philistine conquests of Southern Canaan is well ascertained. Among the leading members of the confederacy were the Cherethim, who appear as Κρῆτες in the Septuagint,[2] and even, by a not unnatural ethnographical anachronism, as Ἕλληνες.[3] We read of these as holding the Southern district towards the Egyptian border, while the kindred Purasati or Pulasati, who seem to have supplied the actual name of Philistines, were their Northern neighbours.[4] The commercial instinct of the Cherethim is well brought out by the occupation of Gaza, lying on the trunk line of commerce between Syria and the Nile Valley, and forming at the same time the Mediterranean goal of the

[1] This very important comparison was already noted by Sayce, *Trans. Soc. Bibl. Arch.*, ix. 128.

[2] Zeph. ii. 5; Ezra xxv. 16. Elsewhere, however, the Hebrew form is transliterated as Χερεθθει.

[3] Isa. ix. 12. It is by no means impossible that an actual Hellenic or Hellenized Minoan element was included under the Philistine name. This would confirm Renan's suggestion that the early incorporation of certain words of Greek origin in Hebrew was due to Philistine influence. Among these are *parbār* = περίβολος, *Mĕkērah* = μάχαιρα, *liškāh* = λέσχη. To these Professor Sayce adds *Lapidoth* or *Lappidoth* = torches, the name of Deborah's husband—from Λαμπάδες—an instance of special value, as the name should go back to a very early period.

[4] See especially W. Max Müller, *Asien und Europa*, pp. 387 seqq. These two tribes are the *Kreti* and *Plethi* of David's body-guard.

South Arabian trade route.[1] Gaza itself bore in later times the title of Minoa and was the legendary foundation of Minos and his brethren. Its chief God Marnas, 'the Lord,' was identified with Zeus Krêtagenês, and, though the evidence of this cult first emerges at a late date, there does not seem to be any sufficient ground for disputing its antiquity. The connexion, indeed, of the Philistines with Crete stands now on a very different footing from that which it formerly held when discussed by Hoeck, Stark, and other adverse critics. New and striking evidence has lately come to light in favour of the identification of the 'Isle of Kaphtor', the original seat of the Philistines, with the Keftô of Egyptian records, the Aegean home of the Keftiu.[2] The most typical of the Philistine personal names, Achish, the LXX Ἀγχους, is twice repeated, under the form Akashou, in an Eighteenth Dynasty Egyptian list which gives Keftiu names for the purposes of a school exercise.[3] That the Keftiu themselves, such as we see them bearing tributary offerings to the officers of Thothmes III, are the characteristic representatives of Late Minoan culture, is no longer open to doubt. The fashions of their dress and hair, the offerings that they bear, the stately vases, the ingots and ox-heads of precious metal, reproduce the types in vogue in the latest Palace period at Knossos. It is to Kefts in their original Aegean home that the names of the Egyptian list refer, and the name of Achish may therefore have been rife in prehistoric Knossos before it was borne by a King of Gath.

Kaphtor and Keftiu.

Date of Philistine conquests in Canaan.

The Philistine conquests of a tract of Canaan seem to have been accomplished somewhat before the beginning of the reign of Rameses III, towards the close, that is, of the thirteenth century B.C.[4] It would even appear that, so far as the Cretan element in the confederacy was concerned, the settlers were following in the wake of earlier commercial establishments in the Canaanite coast towns. On the site of Gezer[5] have been found fragments of imported pottery, some of them in the Knossian Palace style,[6] a 'horned' bronze sword of Minoan form,[7] and even, it would appear, architectural features of Cretan type.[8] The old ideas of the indebtedness of East to West are here reversed, and we see the great Aegean civilization in its latest

Earlier evidences of Minoan commercial intercourse there.

[1] For an excellent appreciation of the geographical position of Gaza, see G. A. Smith, *Hist. Geography of the Holy Land*, pp. 181 seqq.

[2] For fresh evidence connecting the Philistines with Crete, see W. Max Müller, 'Die Urheimat der Philister' (*Mitth. d. vorderasiatischen Ges.*, 1900, i. pp. 1–13). Compare also President G. F. Moore's article 'Philistines', in *Encycl. Biblica* (1902), Mr. H. R. Hall's 'Keftiu and Peoples of the Sea' (*B. S. A.*, viii. pp. 182 seqq.). In my original work on *Cretan Pictographs*, &c., pp. 99 seqq., I had already laid considerable stress on the Cretan connexions of the Philistines.

[3] The 'London List' (*Londoner Tafel*), see W. Max Müller (op. cit., pp. 8 seqq.). W. Max Müller rightly observes 'Demnach haben wir den bekanntesten Philisternamen noch in der Urheimat des Volkes, und diese wird ausdrücklich zum Land Kefto gerechnet. Damit ist der Zuzammenhang mit Kaphtor doppelt wahrscheinlich geworden.'

[4] W. Max Müller, 'Die Chronologie der Philistereinwanderung' (*Mitth. d. vorderasiat. Ges.*, 1900, p. 34), gives grounds for believing that the conquest took place about 1220 B.C. In any case it appears from the Golenischeff Papyrus that Dor was already in Philistine occupation by 1200 B.C.

[5] These discoveries were due to the excavations of Mr. R. A. Stewart Macalister, for the 'Palestine Exploration Fund'. Preliminary notices of the work have appeared in the 'Quarterly Statements' of the Society, and in Mr. Macalister's *Bible Side-Lights* from the Mound at Gezer. Much interesting work, however, remains to be carried out.

[6] See my *Prehistoric Tombs of Knossos* (London, Quaritch, 1906, pp. 107, 128).

[7] *Preh. Tombs*, &c., p. 107.

[8] This observation is due to Dr. Duncan Mackenzie, who observed in a deep stratum at Gezer a stylobate with column bases of typical Minoan character.

phase successfully invading a region in which Mesopotamian and Egyptian influences had hitherto alternately predominated.[1] It is clear that the Philistines settled on the coast of Canaan, though they could never have been very strong numerically, dominated their subjects and neighbours by means of their higher civilization. In their arms and armour and chariots of war they were superior to those of Israel. But the Philistines also excelled in the arts of peace. The Hebrews were reduced to come to the smiths of the 'uncircumcized' for their ploughshares and agricultural implements.[2] The golden mice and tumours wrought by the Philistine artificers as a guilt-offering for the Ark of the Lord,[3] moreover, throw an incidental light on their skill in the plastic arts, and at the same time recall the votive images of animals and diseased human members placed in the old Cretan sanctuaries like that of Petsofà.[4] The special mention of the culture of the olive[5] among the Philistines further reminds us that this was probably the principal source of wealth to the Minoan lords. So too we see the Cherethim of David's body-guard maintaining the old Cretan tradition as skilful bowmen,[6] and attention has already been called to the actual occurrence of a sword of Late Minoan derivation. The imported vases from the Aegean show that their taste in ceramic fabrics remained the same. There are good *a priori* grounds, then, for supposing that they had not wholly forgotten their insular script.

Philistines in Canaan a civilizing Aegean element.

Did they bring with them a Minoan script?

But the relation of the Theban temple-official, Wen Amon, as preserved in the Golenischeff Papyrus,[7] contains some indications of a still more direct nature. The Egyptian envoy, in his quest for cedar-wood, tarried about 1100 B.C. at Dor, then in the possession of the Philistine tribe of the Takkaras, and had occasion for prolonged negotiations with its ruler, by name Badira. This personal narration is remarkable in many ways. It reveals to us a community, the earliest known among those of European stock, in which the Prince's action was limited by the voice of a popular assembly.[8] It evidences a form of religion like that depicted on Minoan seals and signet-rings, in which the God, brought down by offerings, takes possession of his votary, who dances round in an ecstatic state and voices divine commands.[9]

Mission of Wen Amon to Dor c. 1100 B.C.

But what more immediately concerns our present subject, the Takkaras are depicted as altogether versed in the ways of bureaucratic scribes and acquainted with all the different uses to which writing could be turned. Their Prince requires written credentials from the Egyptian official.[10] In another place he is made to promise Wen Amon that, should he die at Dor, he shall have a monument put up to him, and

Literary traditions among Takkaras.

[1] 1 Sam. xiii. 19 seqq. On the culture of the Philistines see especially Stark, *Gaza*, pp. 318 seqq.

[2] Cf., too, 1 Sam. xxxi. 3.

[3] 1 Sam. vi. 4 seqq.

[4] For the votive deposit of Petsofà, which included figures of noxious animals and pathological representations, see J. L. Myres, *B. S. Annual*, ix. pp. 356 seqq.

[5] Judges xv. 5.

[6] Cf., too, 1 Sam. xxxi. 3.

[7] Published by Golenischeff with a French translation, *Recueil de Travaux*, xxi. 74 seqq. German translation by W. Max Müller, 'Der Papyrus Golenischeff' (*Mitth. d. vorderasiat. Ges.*, 1900, pp. 26 seqq.: the references here are to this), and by Ermann, 'Eine Reise nach Phönizien im 11ten Jahrhundert v. Chr.' (*Zeitschrift für äg. Sprache*, xxxviii (1900), pp. 1–14).

[8] W. Max Müller, *Pap. Golenischeff*, p. 25.

[9] Ibid., p. 17. A 'Head Page' of the Prince of Dor is thus 'possessed'; the orgiastic condition being indicated by the determinative of 'dancing'.

[10] Ibid., p. 18.

'if an envoy come from Egypt, who is able to read, he will read your name upon the tombstone'.[1] But the most striking passage in this connexion is where the Philistine Prince has the archives of his forefathers brought out,[2] containing methodical lists of the gifts of Egyptian Kings, as well as of their value, amounting to 1,000 Deben. He might have been a Minoan King of Knossos.

Did the Philistines contribute to formation of Phoenician alphabet?

It may well be asked if some inherited knowledge of this kind, passed on from their enterprising neighbours—whose settlements extended as far South as Dor and the promontory of Carmel—may not, at least, have contributed towards the invention of the Phoenician alphabet.[3]

Of the extent of these influences on Phoenician civilization, as a whole, there can no longer be any question. Phoenician art itself may, in many respects, be described as decadent Minoan,[4] and the enterprising sea-craft of Sidon and of Tyre hardly sprang from a Semitic source. There is evidence that the Greek name *Phoinikes* or 'Red Men' had once a wider significance, and was originally applied to the dark or red-skinned Aegean race, of which we have now the living portrayal in the Cup-bearer and his fellows of the Knossian Palace.[5] It is highly pertinent to observe that the Egyptians in Ptolemaic times applied to the Phoenicians the name of Keftiu, which had originally betokened the men of the Isles of the Sea.[6]

Greek 'Phoinikes' Aegean 'Red Men'.

Unexplained supersession of cuneiform writing in Canaan.

In the fourteenth century B.C., as is shown by the Tell el-Amarna tablets, cuneiform writing was still in general use in Syria and Canaan, and, so far at least as Syria is concerned, this usage continued down to about 1100 B.C.[7] Whence, then, are we to trace the impulse which, during the immediately ensuing period, resulted in the evolution of the Semitic letters?

It is clear that the earliest forms of some of the Greek letters—the Boeotian *Êta* for example—point to prototypes more archaic than any to be found in the most ancient Canaanite inscriptions, such as the Moabite Stone, dating from about 900 B.C. It follows, therefore, that the origin of the Phoenician letters must at any rate go

[1] W. Max Müller, *Pap. Golenischeff*, p. 24.

[2] Ibid., p. 20.

[3] In my first work on 'Pictographs', 1895, pp. 95–7 [364–6], and cf. Table III, I had already been led by the 'altogether startling' parallels between certain Cretan and Semitic forms to make this suggestion, to which I returned in 'The Palace of Knossos in its Egyptian relations' (*Arch. Rep. of Eg. Expl. Fund*, 1899–1900, p. 181). Since the discovery of the advanced linear scripts A and B, the question has been put on a wholly new basis. Some further reasons in favour of the Minoan-Philistine derivation of the Phoenician letters were advanced by me in a course of lectures on 'Pre-Phoenician Writing in Crete', given at the Royal Institution in January, 1903, especially in Lecture III (summary in *Times*, Feb. 2, 1903). To M. Salomon Reinach (*Anthropologie*, xi. p. 409) is due an early recognition of the plausibility of this hypothesis. Cf., too, S. A. Fries (*Zeitschr. d. D. Palaestina-Vereins*, 1900, pp. 118–26), whose knowledge of my work, however, appears to have been derived through the refracting medium of Dr. Kluge's 'Schrift der Mykenier'. M. René Dussaud (*Journ. Asiatique*, 1905, i. p. 357 seqq.) also combats the Semitic view.

[4] S. Reinach observes (*Les Celtes dans les Vallées du Pô et du Danube*, p. 226), 'Il ne peut plus être question de civilisation phénicienne à Mycènes mais seulement de civilisation mycénienne en Phénicie.' See too M. Reinach's *Mirage Oriental*, pp. 721 seqq., and my 'Eastern Question in Anthropology' (*Address to Anthr. Sect. of Brit. Assoc.*, Liverpool, 1896, p. 14).

[5] Fick, *Vorgriechische Ortsnamen*, p. 123. The same suggestion had independently occurred to me. Prof. R. Burrows (*The Discoveries in Crete*, p. 142) remarks, 'It was always puzzling on the assumption that Cadmus, son of Phoenix, was a Semite, that his sister was Europa, and her nephew Minos.'

[6] H. R. Hall, *B. S. A.*, viii. pp. 163, 164.

[7] The cuneiform script still prevailed in Syria, according to W. Max Müller, under the Nineteenth and Twentieth Dynasties (*Mitth. der vorderasiat. Gesch.*, iii. p. 40, &c.).

The South Semitic alphabets.

back earlier than this date. On the other hand, the existence of the derivative alphabets of South Arabia has been used as an argument for a considerably higher dating. The Sabaean inscriptions do not go back beyond 800 B.C., but an antiquity of many centuries beyond this is claimed for the Minaean Empire. This is certainly not the place to discuss the views of Glaser, Hommel, Winckler, and others on this vexed subject, but it must be said at once that the epigraphic evidence, so far as it has been hitherto ascertained, does not favour the view that the inscriptions of Minaea[1] (Ma'în) go back far beyond the earliest Sabaean, with which as a whole their characters agree.

Relation of Sabaean and Minaean alphabets to North Semitic.

The last word has certainly not been said on the relation of these South Semitic alphabets to those of Canaan. The attempt to derive the Phoenician alphabet from this source may be said to have failed. According to the other view, the Sabaean and Minaean scripts were derived from Canaanite characters very little different from the earliest North Semitic alphabet of which we have knowledge.

But neither can this view be said to account for many of the phenomena with which we have to deal. It is true that, as we know from its later Aethiopic offshoot, the names of many of the South Semitic letters are practically the same as the Phoenician, though in a different order. It is also true that the real relationship of many of the Sabaean and Minaean letter-forms with the North Semitic has been a good deal obscured by the glyptic or monumental element so visible in the Arabian characters.[2] The letters, as compared with the Phoenician, have an upright, evenly balanced aspect, and stand, as it were, on their own legs. The calligraphic intention is very visible in their formation and arrangement. But, even allowing for such 'architectonic' modifications and turnings about, the radical divergences are very marked. Several of the characters are clearly of quite independent origin from the Phoenician, and it must further be remembered that the South Arabian alphabet in its developed form has twenty-nine letters instead of twenty-two. It is only by a process of legerdemain that the forms, for instance, of the Phoenician *aleph*, *hê*, *vau*, *chêth*, *yod*, *kaph*, *samek*, *pi*, *tsade*, or *resh* can be recognized in the Sabaean 𐩠, 𐩣, 𐩤, 𐩥, 𐩧, 𐩨, 𐩩, 𐩪, 𐩫, 𐩬. More than this, some of the Proto-Arabian letters have the appearance of possessing more archaic traits than the North Semitic. This is notably the case with 𐩡 as compared with 𐤀 and 𐩱 with 𐤆 (𐤉).

Radical divergences.

[1] Otto Weber, 'Studien zur südarabischen Alterthumskunde' (*Mitth. d. vorderasiat. Ges.*, 1901), after a review of the evidence, comes to the conclusion that the Minaean kingdom (Ma'în) goes back at least to 1200 B.C. He admits, however, with D. H. Müller and J. H. Mordtmann, that the Minaean characters, as a whole, agree with the earliest Sabaean forms, which do not go back beyond the eighth century. It also appears that the earliest Sabaean inscriptions—those showing the most archaic letter forms—run *boustrophêdon*, while, on the other hand, only one *boustrophêdon* inscription is known of the Minaean class.

[2] Lidzbarski, 'Der Ursprung der nord- und südsemitischen Schrift' (*Eph. für sem. Epigraphik*, i. H. 2), makes much of this monumental and calligraphic element in order to account for the rapid divergence of the Southern from the Northern group. He considers that the Sabaean and Minaean letters were derived from the North Semitic in a stage not far removed from that represented by the Moabite Stone. But his derivations of the South Arabian forms from the Canaanite characters are in many cases only obtained by the most violent and procrustean methods. His *modus operandi* is justly criticized by Praetorius, 'Bemerkungen zum südsemitischen Alphabet' (*Z. D. M. G.*, 1904, pp. 715 seqq.) and 'Die Geschichte des griechischen Alphabets' (*Z. D. M. G.*, 1902, pp. 676 seqq.).

Both North and South Semitic forms go back to common source.

The natural inference from these phenomena is that both the North and the South Semitic characters, as we know them, go back to an earlier and more extensive system, from which they each, to a certain extent, have made independent selections. Even when the characters radically correspond, their differences can in many cases only be accounted for by supposing that in each case they have diverged from a common prototype on their own particular lines.

Philistine Gaza natural distributing point.

In what area, then, are we to seek this parent stock? The most natural meeting-place of the North and South Semitic groups would be Gaza, the principal Mediterranean outlet of the South Arabian trade routes, and the point where they debouch upon the highway leading from Northern Canaan and Syria to Egypt.

It will be seen that these converging lines of evidence at any rate project the existence of Semitic letters appreciably beyond the date of Mesha. If we may assume that they came into existence about the eleventh or twelfth century before our era, their first appearance would correspond with the most flourishing period of the Philistine settlement. And in this connexion it is especially to be borne in mind that Gaza, the most natural meeting-place of the North and South Semitic elements, was in the occupation of the Cherethim, who, there is every reason to believe, were colonists from Minoan Crete.

Attempts to find source of Phoenician alphabet; cuneiform theory.

Among the various theories for explaining the origin of the Phoenician alphabet that which would derive its letters from Assyrian cuneiform types is perhaps of all the most arbitrary and procrustean. This view, originally put forward by Dr. Deecke[1] (following on his analogous attempt to explain the origin of the Cypriote syllabary), has since been revived, in a somewhat variant form, by Dr. Peiser.[2] Admittedly, many of the cuneiform combinations chosen for comparison were already obsolete at the time the Semitic alphabet seems to have arisen, but even with the aid of this eclectic process it can hardly be said that in any single case has a real correspondence been made out. On the other hand, the recovery of the quasi-pictorial prototypes of the original Babylonian characters has led to an attempt on Hommel's part to derive the Phoenician letters from this source. But, apart from the striking absence of resemblance between the Phoenician and the earliest known Babylonian forms of the objects answering to their names, the discrepancy of date, which must extend at least to two or three millennia, would be alone fatal to this theory. Nevertheless, owing mainly to the fact that the names of a certain number of the Phoenician letters answer to those of the Babylonian series, there has been a persistent inclination in recent years to seek a connexion on that side.[3] Delitsch, for instance, lays stress on the fact that out of the twenty-two original Phoenician letters the names of about half correspond with

[1] 'Der Ursprung der altsemitischen aus der neuassyrischen Keilschrift' (*Z. D. M. G.*, xxxi (1877), pp. 103 seqq.). Dr. Deecke cites certain hieratic Assyrian signs of a linear character, but their forms are very unconvincing.

[2] 'Das semitische Alphabet' (*Mitth. d. vorderasiat. Ges.*, 1900, H. 2). Dr. Peiser, however, puts forward the hypothesis with the wise caution, that '. . . binnen kurzem die prägriechischen Zeichen zwingen werden, die ganze Frage wiederum von anderen Gesichtspunkten aus zu revidieren'.

[3] F. Hommel, *Gesch. Babyloniens und Assyriens*, p. 54. The crude method of Hommel's comparisons is criticized by Delitsch, *Entstehung des ältesten Schriftsystems*, pp. 222, 223, who, however, subsequently makes some suggestions of his own (op. cit., pp. 228 seqq.) that tend in the same direction.

those of objects included in the forty-five to fifty signs that he regards as the original Babylonian.[1] Yet such a partial coincidence in the choice of objects—such as parts of the human body, house, door, water and fish—can have no special significance. Such obvious selections indeed are common to all primitive systems of writing, and are no more specifically Babylonian than they are Egyptian or Hittite, Chinese or Mexican.

Babylonian element in Phoenician letter-names.

A more definite trace of a Babylonian ingredient is indeed supplied by the fact that several of the Phoenician letter-names present forms that are rather Babylonian than Canaanite.[2] But even this ceases to be remarkable when we remember the extensive knowledge of the Babylonian language and literature in Palestine already attested by the Tell el-Amarna letters.[3] Nor can Zimmern's attempt to show that a certain amount of Babylonian influence is visible in the arrangement of the Phoenician letters be regarded as otherwise than extremely problematic. That the Assyrian signs, amounting to about 400 in number, had a fixed order has been demonstrated indeed by Dr. Peiser,[4] and it appears from the Tell el-Amarna tablets that this arrangement, which must be regarded as Old Babylonian, was already current in the West at the beginning of the fifteenth century B.C. But it is only by a process of shuffling and cutting, as with a pack of cards, that any kind of agreement can be made out between the order of these and that of even a fraction of the Phoenician alphabet.[5]

Phoenician order differs from Babylonian.

[1] Delitsch, op. cit. Omitting Phoenician letters now generally regarded as of uncertain meaning, Delitsch's number of correspondences is reduced from fifteen to eleven or twelve.

[2] Op. cit., pp. 227, 228.

[3] Cf. Zimmern, *Z. D. M. G.*, vol. l. p. 670.

[4] 'Die assyrische Zeichenordnung,' &c. (*Z. für Assyriologie*, i. 95 seqq.); 'Das Princip der assyrischen Zeichenordnung' (*Z. f. Ass.* ii. 316 seqq.). Peiser regards this as 'a kind of graphic (not phonetic) alphabet' employed for the arrangement of certain texts.

[5] H. Zimmern, 'Zur Frage nach dem Ursprung des Alphabets' (*Z. D. M. G.*, vol. l. pp. 667 seqq.). The series below shows, in their Babylonian order, the letters for which equivalent names exist in the Phoenician and Babylonian series (omitting *gimel*, the identification of which with *gammalu* (camel) is generally recognized to be inadmissible).

1 *mu*—13 *mem* = water.
17 *nûnu*—14 *nun* = fish.
42 *ênu*—16 *a'in* = eye.
51 *pû*—17 *pê* = mouth.
51 *shinnu*—21 *shin* = tooth.
52 *reshu*—20 *resh* = head.
105 *alpu*—1 *aleph* = ox.
140 *idu*—10 *yod* = hand (side).
140 *kappu*—11 *kaph* = open hand.
147 *bîtu*—2 *bêth* = house.
155 *daltu*—4 *dâleth* = door.

Now, when we come to analyse this list, we find that not a single one of the Phoenician characters is in the same relative place in the list as the Babylonian. Instead of beginning with *alpu*, the equivalent of *aleph*, the Babylonian series begins with *mu* = *mem*. We are therefore asked to transpose, in a purely arbitrary fashion, the first six and the last five signs. We start then with *alpu—aleph*. But the second and third signs are not *bîtu—bêth* and *daltu—dâleth*, but *idu—yod* and *kappu—kaph*, this pair being represented in Babylonian by a single sign. We are now shunted to the series beginning *mu—mem*. But here the Babylonian 'head' signs appear in a different order from the Phoenician. In Babylonian, moreover, *pû* and *shinnu* are represented, like *idu* and *kappu*, by a single sign.

It will be seen that in spite of the arbitrary rearrangement of the list to suit the assumption, the effort to establish a correspondence in the order of the signs breaks down. What, too, is to be said of the eleven original Phoenician characters which have no Babylonian equivalents? The 400 Babylonian signs certainly provided sufficient material for selection. Why then did the selector choose half his letters from some other source? It may also be pertinently asked, If this Babylonian order underlies the sequence of the Phoenician alphabet, why has the South Semitic branch a different arrangement?

It is to be observed that the Phoenician alphabet presents a series of related pairs, such as 'house', 'door'; two aspects of the 'hand' sign; 'water', 'fish'; 'eye', 'mouth'; 'head', 'tooth'. But this is a natural and organic feature that has no connexion with any extraneous system, though it is also to a certain extent visible in the Babylonian arrangement, as, for instance, in the case of the 'head' signs. In the same way we find (cf. Peiser, *Z. für Ass.*, ii. p. 319) a set of signs in the following order, 'ox, ass, house, wife, land, child, man (*homo*).'

De Rougé's theory.

It will be seen that the attempts to trace the Phoenician alphabet to an old Semitic source have hitherto ended in failure. But the advocates of an Egyptian origin are hardly in a better case. It is strange indeed that the elaborate and over-ingenious theory of De Rougé[1] should at least, till within recent years, have commanded such general adhesion. According to this hypothesis, the Phoenician letters were derived from certain hieratic forms with which they phonetically agree, but which have no reference to the actual names of the letters. This theory, however, popularized in this country by Isaac Taylor's work on the Alphabet, has been too deeply rooted in textbooks[2] not to die hard. But the comparative material now supplied by the discovery of the Cretan scripts must at any rate be taken to give the *coup de grâce* to this far-fetched scheme of extraction. For on Cretan soil we can in several cases actually watch the uninterrupted evolution of linear characters from their pictorial prototypes. When we see there, for instance, the 'hand and arm' sign simplified before our eyes into a linear design identical with *kaph*, is it possible to imagine that *kaph* itself—though it means the same thing—was evolved on the Eastern shores of the same sea from a by no means similar Egyptian character representing the hieratic degeneration of a bowl?

It is true that the number of Phoenician letters the names of which can be definitely explained by the Semitic languages has been much reduced since Gesenius's time. Many have evidently been taken over from a syllabary, and that syllabary does not seem to have belonged to any Semitic stock. Yet it may fairly be urged that the fuller and translatable forms of the names where they exist supply the true key to the origin of the letters as a whole, and that Gesenius was not wrong in supposing that *aleph* was actually derived from an ox's head, *beth* from a house, and so forth. This view is in complete agreement with wide anthropological analogies, and how easily it can be worked out in the case of many of the Phoenician letters was illustrated by a table, reconstructing their pictorial prototypes, prepared by my father, Sir John Evans, for the Royal Institution in 1872.[3] It will be shown below[4] that some of these theoretically reconstructed figures anticipate the result of the Cretan evidence. From this point of view the simple theory of Egyptian derivation proposed by Lenormant is at any rate preferable to the elaborate hypothesis of De Rougé. According to Lenormant's early view, the Phoenician letter-names were literal translations of those of certain Egyptian hieroglyphs from which they were derived, though he himself admitted that many of his suggested identifications were

[1] The first account of De Rougé's theory was communicated by him to the Académie des Inscriptions in 1859, and briefly summarized in the *Comptes Rendus*. It was not till 1874 that his complete *Mémoire sur l'origine égyptienne de l'Alphabet phénicien* was posthumously published by his son, the Vicomte Emanuel de Rougé.

[2] Mr. Edward Clodd, however, in his *Story of the Alphabet*, published in 1900, after passing in review De Rougé's theory and the as yet very imperfectly ascertained Cretan evidence, comes to the conclusion (p. 226) that 'the most plausible theory that the wit of man, supported by a set of facts that seem to hang well together, could devise was formulated by M. de Rougé, and it has been seen that the epigraphic material found in the Aegean renders this apparently well-based and coherent theory no longer tenable'.

[3] In a lecture 'On the Alphabet and its Origin', delivered March 15 of that year.

[4] See p. 92 note 3.

very problematic.[1] It is true that later on he entirely threw over his own hypothesis and became a convert to De Rougé's views.[2]

More recently, indeed, it has been suggested that the Semitic alphabet was the creation of 'a man of Canaan' who knew of the existence of the Egyptian writing and something of its system, but not enough to borrow individual signs.[3] But this 'man of Canaan' introduces far too personal a factor into a much wider sphere of evolution. We recall Lucretius's judgement[4] on the personal theory of the origin of language:—

Proinde putare aliquem tum nomina distribuisse
. . . . . .
Desiperest.

The attempts hitherto made to derive the Phoenician letters from a Babylonian or an Egyptian source, ingenious and persistent as they have been, have only ended in failure. On what side then are we to look for the solution of the problem? It might perhaps be suggested that the Phoenician alphabet had been evolved from some primitive system existing on the soil of Canaan itself, though the proved diffusion there of the cuneiform type of script down to the close of the twelfth century B. C.[5] presents an initial obstacle to such a hypothesis, hard to overcome.

Primitive linear signs in Canaan.

It is indeed evident that in Canaan, as elsewhere, primitive linear signs of one class or another existed at a very early period. Evidence of such is, for instance, supplied by a series of potsherds with engraved signs or marks found in the 'Amorite stratum' belonging to the earliest settlement at Lachish.[6] These signs, which are of isolated appearance and simple geometrical formation, are probably for the most part owners' marks,[7] but it is possible that some among them were figures that possessed a received ideographic meaning, the origins of which may go back to the rudest line drawings of primitive pictography.

Source of Phoenician letters more advanced.

The pre-existence of such early linear signs supplies indeed a formative influence which must always be taken into account in the evolution of the characters of more advanced scripts.[8] But from these isolated scratchings to the full development of

[1] Although Lenormant's theory was put forth by him in lectures ('Cours d'histoire') given in 1838, it did not see the light in print till it appeared, from a summary supplied by him, in De Rougé's *Mémoire sur l'origine égyptienne de l'Alphabet phénicien* (published by E. de Rougé in 1874, pp. 5 seqq.).

[2] *Introduction à un mémoire sur la propagation de l'Alphabet phénicien*, 1866, p. 106: 'Nous regardons . . . la question de l'origine des lettres phéniciennes comme définitivement résolue par M. de Rougé.' See, too, his larger *Essai sur la propagation de l'Alphabet phénicien*, 1872, p. 94.

[3] Lidzbarski, *Eph. f. sem. Epigraphik*, i. H. 2, p. 134.

[4] *De rebus Naturae*, v. 1041, 1043.

[5] See above, p. 83.

[6] F. S. Bliss, *A Mound of Many Cities, or Tell-el-Hesy Excavated*, pp. 21, 23, 25, 28, 29, 30, 33, and 42. Cf., too, S. Reinach, *Chroniques d'Orient*, T. ii. p. 465.

[7] In my first work on *Pictographs*, i. p. 82 [351] (cf., too, S. Reinach, *Rev. Arch.*), I compared some of these signs with Aegean types, but owing to their simple forms the parallelism has little significance. Nor have the more recently discovered materials in any way added to the comparisons. It is to be observed, indeed, that the most specialized of these signs, No. 21, which approaches the Minoan linear form , occurs on a sherd belonging to a later stratum.

[8] Professor Petrie's theory as to the origin of the alphabet as advanced by him in his *Royal Tombs of the First Dynasty*, Pt. I, pp. 31, 32, requires mention in this connexion. Briefly stated, it is as follows:—He is led by the correspondence of certain primitive Egyptian signs with those of Caria, &c., and the Iberian alphabet, to assume the existence of a widely diffused signary common to a large part of the Mediterranean basin in very early time. 'The identity of most of the signs in Asia Minor and Spain shows them to belong to a system with commonly

the Art of Writing, as illustrated by the letters of the Phoenician alphabet, is a far cry. In short, the evidence for a local origin of the Phoenician letters is non-existent, while, as already shown, the attempts to derive them from an Egyptian or a Babylonian source have equally ended in failure. It seems high time, in view of the then preponderating influence of the Aegean civilization on the coast of Canaan, and the actual settlement there of the Philistine tribes, to consider the alternative possibility already suggested—the derivation, namely, of the Phoenician letters from a Minoan source. The fact that the names of many of the letters correspond with known Semitic words cannot in itself be thought conclusive as to the Semitic origin of the script itself, when we remember how rapidly the Philistine new-comers themselves were absorbed and Semitized in the Canaanite mass. What is much more remarkable, and has never been explained, is that the names of seven or eight of the original Phoenician alphabet of twenty-two letters cannot be interpreted by any known Semitic language.[1] Comparisons of these with signs of the Minoan scripts are shown on Table V (Fig. 41).[2]

Is it to be found in the Minoan script?

Un-Semitic names of letters.

It is to be observed that among the Semitic signs with names of unascertained meaning *gimel* approaches very closely to the primitive linearized form of the Cretan 'leg' sign. The Phoenician *hê* (*êta*) is probably in its origin a double of *chêth*,[3] the 'fence' sign, and its Minoan analogies are shown in Table V. If, as seems probable, the Sabaean ⧖ supplies the earlier form of *zain*, we have here a Cretan linear character which may go back to the frequently recurring hieroglyph that represents a double axe. *Lamed* answers to the Cretan 'crook' sign, common to the Minoan hieroglyphic series and to the linear Class A, though in the latter case it is reversed.

Samek recurs *totidem lineis* among the characters of the linear Class A and in a simpler form among the hieroglyphs. The Cretan linear form, according to the analogy of a similar figure on early Cypriote cylinders, should go back to a 'tree' sign.

Tsade is also very closely reproduced by a sign of Class A, the outline of which somewhat recalls the 'adze' pictograph of the earlier system.

Two even more convincing analogies for the pictorial origin of unexplained Phoenician letters remain to be enumerated. *Têth*, the Greek *thêta*, is eminently

received values in the later times.' From this extensive signary the Phoenicians selected 'a short series (only half the amount of the surviving alphabets) for numerical purposes,—as A = 1, E = 5, I = 10, N = 50, P = 100, Φ = 500. This usage would soon render these signs as invariable to order as our own numbers, and force the use of them on all countries with which the Phoenicians traded.' But it is hardly necessary to point out that the Phoenician system of numeration had nothing to do with the Greek alphabetic method. It was indeed from a Greek source that the later Syrian and Hebrew alphabetic numeration seems to have been derived (cf. Larfeld, *Handbuch der gr. Epigraphik*, 1907, p. 416). The common 'Mediterranean signary' is itself a myth, though a certain number of primitive signs naturally recur in various areas.

[1] I may refer on this point to the judicious article of Dr. J. P. Peters, 'Recent Theories of the Origin of the Alphabet' (*Journ. Amer. Or. Soc.*, xxii (1901), pp. 177-98).

[2] In this Table, and Table VI on p. 89, S. Sem = South Semitic (Minaean and Sabaean), Gr = Greek, A* = early signs of the advanced Linear Script of Crete (found on vases, &c.). A, the Linear Class A; B, the Linear Class B; P, signs of the Conventionalized Pictographic or Hieroglyphic Class.

[3] See below, p. 90.

a 'wheel' sign, but Semitic etymologies have failed to throw any light on its name. No Babylonian or Egyptian hicroglyphic derivation can be claimed for it with any show of probability. It is also absent from the conventionalized pictography of Crete, which belongs to the period before wheel traffic was known to the Aegean world; though this coincidence by itself is not conclusive, since a primitive solar sign consisting of a cross within a circle is widely diffused. But, with the first advent of the advanced linear script, ⊕ becomes one of the commonest of the Minoan characters. It appears in both Class A and Class B, and some of its more degenerate forms, especially of the latter class, present a close conformity with the

Têth-thêta and the Minoan 'wheel' sign.

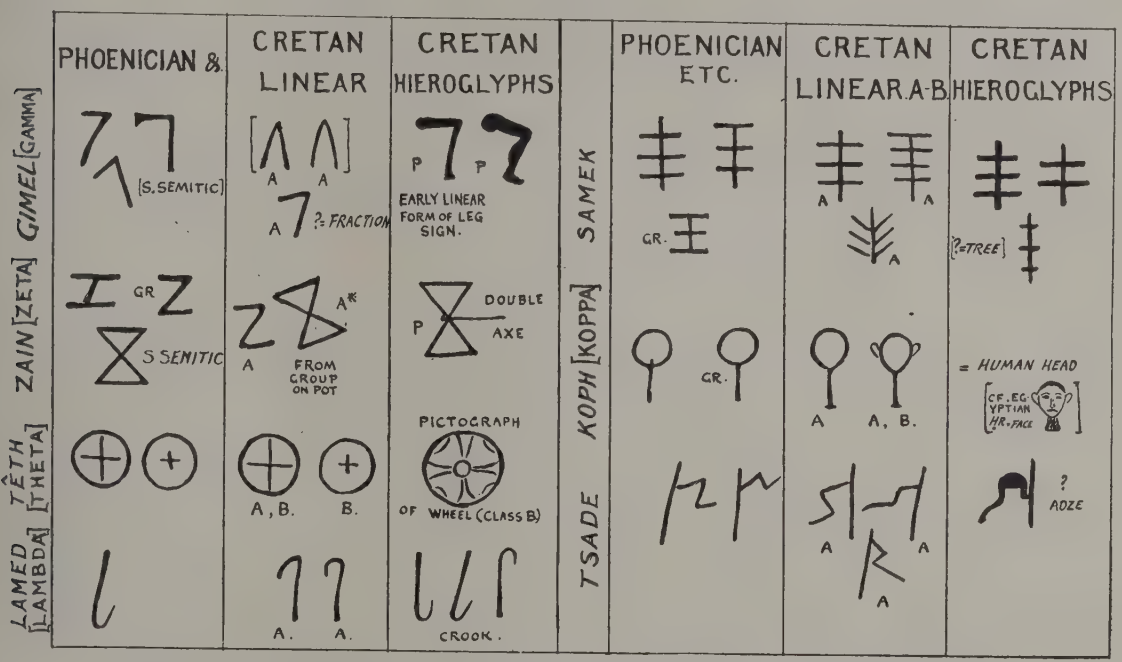


FIG. 41 (TABLE V). Phoenician, &c., letters of uncertain meaning compared with Minoan signs.

Phoenician *têth*. On the tablets of Class B, moreover, we find the pictorial figure of a chariot-wheel in addition to purely graphic and simplified characters.

Koph is another letter-name unexplained by any Semitic language. *Resh*, which follows it, is by general consent interpreted as the human head, and if derived from a pictograph with this meaning would originally have been a head in profile. From the early Tyrian form of *koph*, preserved in the Greek *koppa* (ϙ), and from the recurrence of a series of allied pairs in the Phoenician list—such as *yod* = 'hand' and *kaph* = 'palm'; *mêm* = 'water' and *nun* = 'fish'; *'ain* = 'eye' and *pê* = 'mouth'—it is natural to explain it as having originally represented the outline of a facing head without features.[1] It is certainly, therefore, a suggestive fact that

Koph and the Minoan 'head' sign.

[1] It was, indeed, formerly compared with an Arabian word signifying the back of the head; but Delitsch considers this comparison unwarranted (op. cit., p. 227 note). Cf., too, Peters, op. cit., p. 196.

a similar character should reappear as a common sign in both classes of the Minoan linear script, at times under the same simplified aspect, but more generally with a loop on either side indicating the two human ears. We thus very closely approach the Egyptian 'face' sign *ḥr*. In this connexion it is interesting to observe that in the Iberic alphabets the *koph* sign is frequently substituted for *resh*, or the head seen in profile. There, at least, its significance as 'head' was clearly recognized.

Presumptions in favour of pictorial origin.

In the above instances, although no sufficient key to their meaning can be obtained from the names of the Phoenician letters, the life-history of the parallel Minoan forms affords a strong presumption in favour of a similar pictorial origin. About the meaning of some two-thirds of the Semitic letter-names, however, authorities are generally agreed. According to the over-subtle theory of De Rougé, indeed, these names do not by themselves afford any real clue to the origin of the letters. *Aleph*, for instance, was, on his showing, descended not from an 'ox' but an 'eagle'; *pê* was not a 'mouth', as its name signifies, but a 'shutter', and the 'tooth' sign, *shin*, was derived from an 'inundated garden'. But many even of those who reject De Rougé's theory still regard the names of the Semitic letters as having nothing to do with their real origin.

Antecedent stages of Phoenician letters supplied by Minoan scripts.

On this important point the Cretan signaries again afford analogies of a most suggestive kind. For on Cretan soil we can often watch the actual evolution of the linear from the pictorial form. The fact that we have here not only two classes of advanced linear scripts, but the earlier hieroglyphic system and still more primitive line drawings, enables us in many cases to trace back the advanced linear form to its pictorial source. The derivation is not theoretical, as in the case of the Phoenician letters, but becomes a matter of ocular demonstration.

Names seen to correspond with origin.

If, therefore, Cretan linear signs resembling Phoenician letters go back to pictorial prototypes which correspond with their Phoenician names, we have something like a proof that these names afford a real clue to the origin of the letters.

In Table VI (Fig. 42) will be found comparisons of a series of Phoenician or other Semitic letters, the names of which bear ascertained meanings, with characters of the Minoan signaries.

It will be seen from this Table that—not to speak of other striking similarities—coincidences of the kind referred to above are actually found to occur in a succession of examples. The 'ox-head' sign, for instance, is common in the Minoan hieroglyphic series, and we see from the Phaestos whorl that it had an alternative linear form closely corresponding with the Phoenician *aleph*.

'House' signs—*bêth* and *daleth*.

Bêth, the 'house', for which we have an interesting sidelight in the South Semitic form shown in the Table, finds a very close parallel, common to both the Minoan linear Script A and B. It seems quite possible, moreover, that the actual prototype of this is to be recognized in the 'storehouse' sign of the Cretan hieroglyphic system: indeed, before this was known an identical pictorial origin was suggested by my father. *Daleth*, the 'door', is also common to the Minoan signaries, but in this case

FIG. 42 (TABLE VI). Phoenician, &c., letters with names of ascertained meaning compared with Minoan signs.

the form throws no obvious light on the name unless it be the triangular door opening of a tent or wigwam.

'Gate' signs—*hê* and *chêth*.

There seems some reason for believing, as was long ago pointed out by Lenormant, that *hê* in the Phoenician series is a differentiated form of *chêth*,[1] the 'fence' or 'enclosure'. It is, therefore, specially interesting to find in all the Minoan scripts two closely parallel signs of very similar appearance, though used with different values, which can be traced back step by step to a pictorial origin evidently delineating a gate or hurdle. The Semitic *hê* has only three bars, but the Boeotian form of E ( )[2] shows that the original Semitic prototype had four bars, and strengthens the comparison with the Minoan forms. In the Cretan hieroglyphic script this sign seems to have been used in the sense of 'custody'. Thus we find it coupled with a pig. This sense of guardianship also comes out under a more dignified aspect in formulas where it is associated with the sacred Double Axe of the Minoan religion, in what may be an official title.

'Hand' signs—*yod* and *kaph*.

Among the pairs of the Phoenician alphabet are *yod* (*iôta*), meaning 'hand', coupled with *kaph* (*kappa*) = 'the hollow of the hand' or 'palm'. In the Minoan series there are several hand and arm signs. Among the hieroglyphs appear either two crossed arms or a single arm, and the hand seen either from the front or on the side. There is also a primitive linear form apparently representing two arms proceeding from a trunk with the hands in profile. In the linear series we find an abbreviated form of this latter, giving a profile view of the hand and forearm, resembling the Semitic *yod*. We also see, in addition to the ordinary 'hand' sign, another type with the forearm and open hand completely linearized, the fingers being reduced to three. This type precisely answers to the Semitic *kaph* (see Table VI).

The true connexion of the Phoenician names and letter-forms is here again confirmed; but according to De Rougé the *yod* is derived from a hieratic sign representing 'parallels', and *kaph* from a handled 'bowl'!

'Fish,' or 'Water-snake'?—*nun*.

The Hebrew *nun* means a 'fish', and the word in this sense is common to all the North Semitic languages. The resemblance to the object described is here not obvious, though it has been suggested[3] that this letter originated from the abbreviated outline of a fish, taking the upper line of the head, the cross-line of the gill, and the line of the belly. On the other hand, the Aethiopic name for this letter, *nahas* = 'a serpent',[4] suggests that its real origin may be sought in that direction, and that the name 'fish' was rather applied to it from the association with *mêm* = 'water'. May it originally have depicted a water-snake or eel? This suggestion certainly receives a striking corroboration from the ascertained history of a similar character in the Minoan script. A zigzag sign of the hieroglyphic class, No. 84 below,

[1] Lenormant expressed the opinion that *hê* was a double of *chêth* (cf. De Rougé, *Mémoire sur l'origine égyptienne de l'alphabet phénicien*, p. 7).

[2] This form also reappears as a letter of the Phrygian alphabet, perhaps in the wake of 'Aeolian' influences (Kirchhoff, *Studien*, &c., ed. iv. pp. 54 seqq.; Roberts, *Introduction to Greek Epigraphy*, i. p. 312; and see W. Larfeld, *Handbuch der griechischen Epigraphik*, 1907, pp. 340, 341).

[3] This suggestion was made by my father, Sir John Evans, loc. cit.

[4] Cf. J. P. Peters, 'Recent Theories of the Origin of the Alphabet' (*Journ. Am. Oriental Soc.*, vol. xxii. p. 195).

which in its angularized simplification closely approaches the shape of the *nun*, goes back by a regular transition to a conventionalized pictorial rendering of a snake.

'Eye' sign—*'ain.*

Even De Rougé's ingenuity failed to discover a hieratic prototype for *'ain*—the Greek *o*—which is the common Semitic name for 'eye'. There are two main types of this letter, the Tyrian, which forms a *vesica piscis*, and the Sidonian, which is circular. The one represents the outline of the whole eye, the other the pupil; and it is obvious that they are derived from a prototype giving both the outline and the pupil. Such an original form is, in fact, reproduced in a common Cretan pictograph in its purest shape, representing the whole eye with both its pupil and lashes. In the linear Classes A and B the outline of the whole is preserved, with only traces of the details, the form thus approaching the simple *vesica piscis* of the Tyrian class. Some interesting transitional forms will be found to be supplied from a Lycian source.[1] On the other hand, there is a very early Minoan linearization of the eye as a circle with or without a central dot.

'Mouth' sign—*pê.*

It seems probable that the older and more perfect form of the Phoenician 'mouth' sign *pê* should probably be recognized in the South Semitic type of the letter. This character, resembling a *vesica piscis*, though set on end, evidently starts, as its name implies, from a pictorial delineation of the human mouth.[2] This also occurs among the Cretan hieroglyphs.

The 'head' sign *rêsh* or *rôsh*—the Greek *rô*—finds a close analogy in a common character of the linear Class B; and *tau*, which signifies a 'mark', is found both in the linear and the pictographic series. In the latter case it is also used as a simple mark indicative of the beginning of a sign-group.

The complementary Greek letters and their South Semitic analogies.

It looks as if the complementary letters Φ, Χ, and Υ of the Greek alphabet had been directly taken over from some South Semitic source. Though added to the letters directly derived from the Phoenician series, their adoption by the Ionian Greeks goes back, perhaps, to an equal antiquity with that of the borrowed Phoenician forms. It may be regarded as certain that they were in use at Chalcis and Miletos before the end of the eighth century B.C.,[3] and as the respective East and West

[1] See above, Table II, p. 66, Nos. 8, 9.

[2] It is, of course, possible that the North Semitic form may, as has been suggested, be intended to represent the mouth in profile.

[3] See Kirchhoff, *Einleitung*, &c., p. 172. They appear already in the Chalcidian colonies founded before that date. They must have been known quite as early at Miletos (Larfeld, *Handbuch der griechischen Epigraphik*, 1907, i. p. 376), and in the Milesian numeral alphabet, dating at least as early as 700 B.C., they already appear in fixed order before the *ômega*, the introduction of which they probably precede. It is also to be observed that all the complementary signs, including the *ômega*, are found in the early inscriptions of Naukratis dating from about the middle of the seventh century (E. Gardner, 'The Early Ionic Alphabet,' *J. H. S.*, vii. pp. 220 seqq.). This is a further proof of their still earlier existence in the Milesian Mother City.

The Safa inscriptions are themselves perhaps too late, and their locality too inaccessible, for them to be regarded as the source of these complementary Greek letters. The analogies with the Φ, Ψ, and Υ are to be found in the earlier Sabaeo-Minoan alphabet, and it seems probable that if the Ionians adopted the South Semitic letter-forms they took them from some maritime centre, such as Gaza, in intimate commercial relations with Arabia. Deecke's attempt to derive *ϕ*, *χ*, and *ψ* from the Cypriote forms for *hu*, *khu*, and *se* (see his article 'Alphabet' in Baumeister, *Denkmäler d. klass. Alterthums*, i. p. 51) cannot be regarded as successful. *Ômega*, however, has an independent history, and Prof. E. Gardner's comparison with forms of the Cypriote *ko* or *go*—an aspirated *o*—is certainly suggestive (*J. H. S.*, vii. p. 233).

Ionian values of the Χ and Ψ or Ψ had already by that time differentiated, their original introduction must be thrown back to a still more remote date. But the remarkable point is that, of these complementary signs, the Φ in its archaic form Ⓘ recurs in the South Semitic series with the closely allied value of *v* or *w*,[1] while the two forms Ψ or Ψ are also found in the same series with the value of *khi*, identical with that attached to the Chalcidian alphabets. In the Safa inscriptions, on the other hand, found in the deserts South-East of Damascus, the sign Χ is found with the force of an aspirate (*ḫ*), thus closely approaching the Milesian application of χ.[2] It will be seen from Table VII (Fig. 43) that all these letter-forms find close parallels in characters belonging to the Minoan signaries.

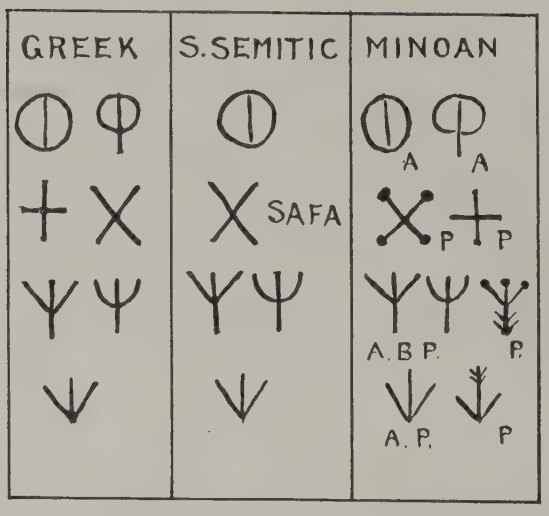
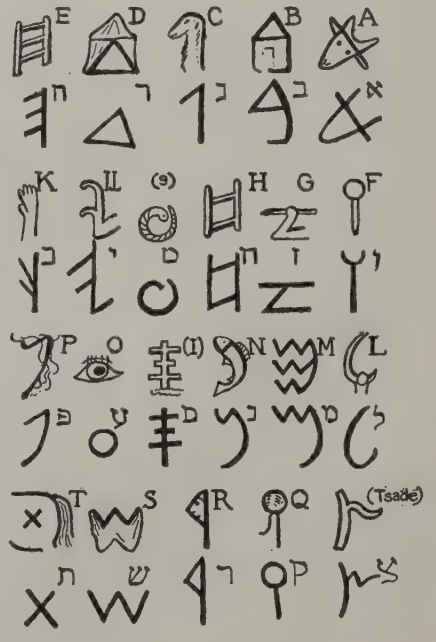


Fig. 43 (Table VII). Comparison of the Greek complementary letters with South Semitic and Minoan forms.

Pictorial reconstruction of Phoenician letters confirmed.

The above summary indications must here suffice, but it will probably be admitted that they demonstrate a very remarkable correspondence between old Semitic and Minoan characters. In many cases the pictorial originals of the Phoenician forms, as they had been hypothetically reconstructed[3]



[1] It also appears with the same value as a Carian sign.

[2] Praetorius, 'Die Geschichte des griechischen Alphabets' (*Z. D. M. G.*, 1902, pp. 676 seqq., and cf. 1904, pp. 715 seqq.), lays stress on the correspondences of the complementary letters of the Greek alphabet with those of the Safa inscriptions. He thinks that in the Safa alphabet Ψ may have stood for *dz*, which could with comparative ease be taken over to serve for *ps*.

[3] In his lecture referred to above, Sir John Evans gave a series of figures of the probable pictorial originals of the Phoenician letters in accordance with the generally received interpretations of their names. It is true that in several cases more recent criticism (cf. Peters, op. cit.) has disposed of the old Semitic derivations, but even in such instances the Cretan evidence affords strong support for these hypothetical reconstructions. The Table is appended here.

by my father some thirty years before the date of the Cretan discoveries, actually anticipate the since discovered forms of Minoan hieroglyphs.

Necessary reservations.

It must always be borne in mind that the comparisons here instituted between Minoan signs and the Semitic letters are subject to the same reservations as those already stated in the case of the Cypriote and Anatolian characters. We have no strictly unified system to draw upon. We have already seen that in Minoan Crete there was not only, at an early date, a hieroglyphic and a closely allied primitive linear signary, but that these were succeeded by two divergent systems of advanced linear writing in more or less contemporary use. Moreover, in addition to the linear Classes A and B, there is some evidence of the existence of one or more variant signaries on the Mainland side during the Third Minoan Age. In Cyprus, again, not counting the later syllabary, we have a fragment of another closely allied type of Minoan linear script. There are good grounds, then, for supposing that there may have existed other provincial or colonial forms of script of which as yet we have no knowledge.

In all these variant systems of linearized writing there was, doubtless, as we see in the case of the Classes A and B, of which we have full knowledge, a large common element. But there is also in each of these classes a series of signs peculiar to itself. The evolution of the advanced linear script involved a diminution in the number of signs in common use, and thus it happened that, out of a much more extensive primitive stock, the preference shown by local scribes favoured the survival of certain characters in one system or the other.

Lacunas in the evidence.

These considerations are quite sufficient to explain such lacunas as exist in the comparisons instituted. The fact that certain Phoenician letters like *mem* = 'water' bear no obvious relation to known Minoan forms can, for this reason, by no means be taken to show that many other signs have not a direct affinity. The fact that we have no fixed and centralized system to deal with in the case of the Minoan scripts also makes it permissible, at least provisionally, to exercise a certain eclecticism in the choice of comparison. *Gimel* has, for instance, been here compared with the primitive linear form of the bent human leg of the Cretan hieroglyphic series, though the evidence of the survival of this in the advanced Linear Scripts A and B is not decisive. In the same way too the 'mouth' sign is only found among the hieroglyphs. *Aleph*, again, has for the same reason been compared with the Cretan pictographic sign for an 'ox-head' and its primitive linearization, though no similar character occurs in the advanced linear scripts of Crete itself, so far as they are at present known to me.[1]

Extent of correspondence between

Taken as a whole the correspondences between the Semitic letters and the Cretan characters are of such a nature as almost to necessitate the conclusion that they do to a great extent represent a selection from a provincial Late Minoan signary.

[1] It is true that the sign is found in the Linear Class B, which closely recalls the Greek *Alpha*, but there is no evidence to show that this is the 'ox-head' sign reversed.

Phoenician and Minoan forms.

Advanced Minoan linear characters, word-signs as well as syllables or letters.

Such word-signs translated, or literally taken over.

It will be shown in the course of this work that even the advanced linear signs of Crete, though they, doubtless, possessed the value of syllables, or even at times, perhaps, of single letters, could still on occasion be used with their old ideographic force as word-signs. This aspect of the Minoan script would greatly facilitate its adoption by men of other speech. Any individual character could be taken over with a translated value. A Minoan sign, for instance, might represent the full native word for 'house' or 'hand', or a part of such a word. The word-sign could be adopted in a translated form as *bêth* or *kaph*, the phonetic value of which was, however, reduced to a mere *b* or *k* by the new and advanced method of Phoenician acrophony. On the other hand, it looks as if names such as *têth* and *koph* were literally taken over from the original tongue—*ex hypothesi* that of the Philistine colonists. In some cases, again, the names represent, perhaps, rather the first syllable, closed or otherwise, of the original word.

The theory here advanced is that the taking over of these foreign terms was, like the adoption of the forms of the letters themselves, the result of the Semitization of Philistine tribes who had brought with them their own variety of the Minoan linear script from their Aegean homes. As stated above, the common elements in the North and South Semitic alphabets seem to point to Southern Palestine, and in particular to 'Minoan' Gaza as the chief distributing point. But the Philistine settlements extended considerably further North, at least to the neighbourhood of Carmel. The question may even be suggested whether some Aegean element may not have intruded into the bosom of Phoenicia itself? This, at any rate, would help to explain the persistent application by the Egyptians, down to late Ptolemaic times, of the name of 'Kefts', by which they had formerly distinguished the Minoan population of Crete and the Islands, to the Phoenicians. It is on all fours, indeed, with the Greek use of the term 'Phoinikes', a term originally applied to the true Aegean 'Red-Men'. The persistent name of Keftians applied to them by the Egyptians may in this case have been based on a real ethnic ingredient among them representing the true Aegean 'Red-Men'. It must certainly be said that the character of the Phoenician maritime enterprise, their eclectic religion, and the cosmopolitan colonial spirit generated by their great cities somewhat belies a purely Semitic origin.[1]

Was there a Keft nucleus to Phoenicians?

[1] In an interesting conversation that I had with Mr. Gladstone at Hawarden in 1896, during which some of these possibilities were discussed, he enlarged on the maritime spirit of the Phoenicians and on other characteristics, and concluded with the remarkable expression of opinion, 'I have always believed that the Phoenicians were at bottom of non-Semitic stock.'

I. § 11. MINOAN CONTACT WITH EGYPT, ITALY, AND SPAIN

Indications of Aegean factories in Lower Egypt.

The diffusion of the Philistine settlements through the Southern part of the Canaanite littoral, and in particular the occupation of the country about Gaza by the Cherethim, must be taken in connexion with the extensive traces of Aegean contact that appear during the same period in the Delta and a large part of Lower Egypt. The actual settlement of Aegean elements on Egyptian soil may go back to the borders at least of the Middle Minoan Age, and indeed it is difficult to believe that such works as some of the inlaid dagger-blades from the Royal Tombs at Mycenae—so Egyptian in technique as well as in the details of Nilotic scenery—could have been produced elsewhere than on Egyptian soil.[1] The finds of Late Minoan pottery in this region from about the time of Amenhotep III onwards are indeed so plentiful[2] as to lead us to suppose that important factories had by this time been planted in the Delta from Crete or other parts of the Aegean. The Philistine settlements in the Canaanite tract that was to take from them the name Palestine to some extent, perhaps, represented the eastward drift of these elements from the mouths of the Nile.

Diffusion of Late Minoan remains there.

It is during this same period of stationary civilization and slow decadence—the Third Late Minoan—to which this later series of Egyptian finds belongs, that the evidences of Aegean intercourse become most abundant on the Italian side. This is especially noteworthy in the neighbourhood of Taranto and in the old Iapygian district,[3] which was itself traditionally connected with a Cretan settlement.[4] On the Adriatic side Late Minoan remains occur as far North as the neighbourhood of Venice[5] and the opposite coast of Istria,[6] and on the Tyrrhene shores extend at least to the site of Cuma. The abundant discovery of Minoan relics of the same period in Sicily[7] further recalls the persistent tradition which traced the fall of the Minoan Empire to an exhaustive expedition on this side, and even placed the tomb of Minos on Sicilian soil.[8] The abiding influence of this contact is seen not

Late Minoan traces in Italy and Sicily.

[1] I had already advanced this view in *The Eastern Question in Anthropology* (Address to Anthr. Section of British Association, 1896).

[2] The Ashmolean Museum is now the repository of a considerable series of these Late Minoan finds from Egypt, due to the discoveries of Prof. Flinders Petrie and others.

[3] The discovery in this district of extensive remains belonging to the latter part of the Late Minoan Age has been due to the researches of Dr. Quintino Quagliati, Director of the Taranto Museum. Thanks to his kindness, I have been able to go over the materials on the spot.

[4] Herod., vii. c. 170, makes the relics of the Cretan host that had followed Minos in his disastrous expedition to Sicily settle in Iapygia, where they were stranded owing to a storm. They founded the City of Hyria (Oria) and 'were transformed into the Messapian Iapygians'.

[5] At Torcello. See R. M. Dawkins, *J. H. S.*, xxiv. p. 126.

[6] H. Gutscher (*Vor- und frühgeschichtliche Beziehungen Istriens und Dalmatiens zu Italien und Griechenland*, 1904, pp. 13, 20) gives evidence of Third Late Minoan influence at Nesactium; cf. R. Burrows, *The Discoveries in Crete*, ed. 1, p. 157, n. 3.

[7] See especially the papers of Orsi in the *Bullettino di paletnologia italiana* and the *Monumenti antichi*. The references are collected in *Prehistoric Tombs of Knossos*, pp. 108, 109, where reasons are given for supposing that the connexion between Crete and Sicily goes back at least to the First Late Minoan Period, though the most abundant remains are those of the Third Late Minoan Age.

[8] Herod. vii. 170; Diod. iv. 76–9.

The Minoan tradition in Sicily.

only in the civic name Minoa, but in the cult of Eryx, whose Lady of the Dove held fast to the attributes, the pillar-shrine, and the symbolic *svastika* sign of the great Nature Goddess of Minoan Crete.

Sardinia: ingots with Minoan signs.

A further stage of this Minoan influence is seen in Sardinia, and in this case again the evidence is associated with the appearance of linear signs. Some early bronze ingots have come to light at Serra Ilixi near Cagliari [1] of the same form as those depicted on the Knossian tablets [2] and among the gifts of the Keft chieftains on Rekhmara's tomb, and otherwise identical with the hoard of ingots of the same metal from the Royal Villa at Hagia Triada and an example found in the Cypro-Minoan cemetery of Enkomi in Cyprus.[3] Like the Cretan and Cypriote examples, moreover, these exhibit linear signs,[4] in one case two of them grouped, of which it may be said that, with one exception, they are practically identical with characters of the Minoan scripts. They should probably, however, be better classed with the Cretan signs applied to various objects as marks of a series—which, indeed, as will be shown later on in this work,[5] often correspond with those employed for the purpose of writing. The average weight of these ingots approximately answers to that of those from the Royal Villa at Hagia Triada, and represents the light Babylonian talent of Minoan usage.[6]

Minoan connexions with Spain.

The evidences of Minoan enterprise extend still further to the West.

The researches of the brothers Síret into the Early Metal Age culture of the South-East of Spain [7] had already produced indications, such as the forms of certain stone idols, of a certain parallelism with Aegean culture at a very remote period.[8]

Minoan origin of Iberic vase decoration.

But a new chapter in discovery has been now opened by the recent investigations of Professor Pierre Paris [9] of the University of Bordeaux, which tend to show that Minoan civilization, in the strictest sense of the word, exercised an extensive influence throughout the whole Eastern tract of the Peninsula. From Tarragona and inland, up the valley of the Ebro, at least to the neighbourhood of Saragossa, South and East to

[1] Pigorini, 'Pani di rame provenienti dall' Egeo, scoperti a Serra Ilixi in provincia di Cagliari' (*Bull. di pal. ital.*, xxx (1904), pp. 91 seqq.). They were first published by G. Spano (*Bullettino archeol. Sardo*, iii (1857), p. 94; cf., too, ib. vi (1860), p. 365).

[2] See my 'Minoan Weights and Mediums of Currency' (*Corolla Numismatica*, 1906, pp. 355, 356, and Fig. 11).

[3] Murray, *B. M. Excavations in Cyprus*, p. 15, Fig. 1535, and p. 17: cf. A. J. Evans, *Mycenaean Cyprus*, &c.

[4] Some of these are incised on the hard metal. Others are stamped on the metal when still soft from the casting. (Cf. Pigorini, op. cit., pp. 105, 106.)

[5] In vol. ii.

[6] A. J. Evans, 'Minoan Weights and Mediums of Currency' (*Corolla Numismatica*, pp. 358 seqq.).

[7] *Les premiers âges du métal dans le Sud-Est de l'Espagne*, 2 vols. (Anvers, 1887).

[8] Some clay vessels and other objects in the Museum at Marseilles, closely resembling those of early Cycladic tombs, have been taken as a further proof of early Aegean relations with the West Mediterranean. A doubt, however, appears to exist in the most competent quarters as to whether these really represent local finds.

[9] *Essai sur l'art et l'industrie de l'Espagne primitive*, 2 vols. (Paris, 1903–4), and *Arch. Anz.*, 1906, 168 seqq. In a notice of Prof. Paris's book in the *Revue Archéologique* (v. p. 159), M. S. Reinach accepts the general conclusion as to the Aegean derivation of the designs: 'Ici nous sommes en présence d'une céramique à motifs mycéniens, mais dont pas un tesson ne pourrait être attribué à un atelier de la Grèce historique.' For further discoveries of the same class see E. Albertini, 'Rapport sur les fouilles d'Elche' (*Comptes-rendus de l'Ac. des Inscriptions*, &c., 1905, pp. 611 seqq.; also *Bull. Hisp.*, Oct. 1906; Jan., Apr. 1907). An interesting review of the materials will be found in Paul Baur's article on 'The Pre-Roman Antiquities of Spain', *Am. Journ. of Archaeology*, 1907, pp. 182 seqq. On the 'Minoan' or 'Mycenaean' character of the designs, cf. too J. L. Myres, 'The Year's Work in Classical Studies,' 1907, p. 39.

the upper waters of the Jucar, to Alicante, and Murcia, and not least from the ancient site that had already given its name to the 'Lady of Elche', has been obtained painted pottery showing a style of decoration affiliated to that of Minoan Crete.[1]

The ceramic objects here referred to are not, indeed, articles of import, though at least one vase of the Latest Minoan or Mycenaean Class has been found in Spain.[2] The vessels in question differ both in paste and technique from the Minoan class. We must therefore suppose that they were introduced into Spain from some intermediate centre, probably on the north coast of Africa,[3] and not directly from the Aegean island. But a large proportion of the ornamental designs go back, beyond all contestation, to Mycenaean, and in a distinct measure to specifically Minoan prototypes. A whole series of naturalistic plant and animal forms—though the actual selection was often of an indigenous kind—fit on to the characteristic designs of the First Late Minoan Age, and certain features that they display must be regarded as a direct inheritance from Middle Minoan polychrome motives.[4] Others reflect the Knossian Palace Style of the succeeding epoch (L. M. II), while others, again, betray the contagion of the Mycenaean decadence,[5] and in some cases present points of comparison with Mainland types bordering on the Geometrical Period.

Long persistence of Minoizing ceramic class.

It is clear—since archaeologically speaking it is contemporary products and not obsolete fashions that are imitated abroad—that the earlier class of designs on these vessels must go back to the First Period of the remodelled Palace at Knossos. But colonial art is often conservative, and there is evidence that this class of pottery, in at least its later phases, went on in Spain down to the days of Classical Greek influence in the fifth and fourth centuries before our era. It is noteworthy that some of the later offshoots of the class have been found near Narbonne in Southern France.[6]

Minoan bronzes in Majorca

Nor does this remarkable ceramic evidence stand alone. Some equally clear indications are supplied by ancient bronzes, and notably a series of bulls' heads with Urus-like horns from Majorca,[7] which, whether of indigenous fabric or not, certainly belong to a brilliant Minoan school.[8] These seem to have had a religious intention, and, though the heads are in no instance surmounted by the sacred Double-Axe, the dove of the Minoan Goddess is seen perched upon one of the

[1] In November of 1907 I had the advantage of going over in Professor Paris's company the specimens of this Spanish ware that he has procured for the Louvre. A great mass of unpublished Cretan material supplements the comparisons that M. Paris had already instituted.

[2] G. de Golos (*Saragoza*, T. I. Pl. III) figures a pyxis, accepted by Furtwängler as Late Mycenaean. Cf. Perrot, *L'Art*, &c., T. VI., p. 940, n. 5.

[3] But hardly, as M. Siret suggests, *Rev. Arch.*, x. p. 453, late Carthaginian.

[4] e.g. the spiral ornament combined with a loop that proceeds from it like a bud and is internally decorated with cross-hatching. Paris, op. cit., p. 64, Figs. 87, 88, and p. 84, Fig. 170 (Meca).

[5] There the rocks, argonauts, &c., of L. M. I are seen in their degenerate geometrical shapes.

[6] Specimens now in the Louvre were shown me by M. Pottier.

[7] Op. cit., i. pp. 141 seqq. The bulls' heads, now in the Madrid Museum, were acquired by Dr. José Ramon Melida from a tongue of land at Costig, known as Son Corró, supported on one side by a 'Cyclopean' wall and containing a *talayot* of similar construction.

[8] The characteristic features (recognizable at once to those familiar with the Minoan renderings of bulls' heads) are well defined by Prof. Paris, op. cit., i. pp. 157, 158.

and Spain.

horns. It may be added in this connexion that a bronze figure in the Madrid Museum represents both in its characteristic attitude and peaked head-piece a form of the Minoan Warrior-God, of which the best example comes from a Cretan votive cave.[1]

Minoan influences on Iberic culture precede Phoenician.

We have here, then, the wholesale evidences of an Iberic culture with Minoizing traditions extending over a large part of Eastern Spain and the Balearic Islands. In Majorca the evidence is of such a kind as to warrant the conclusion that there was a direct connexion with the Minoan world. In the case of the ceramic remains the traces of Minoan influence must, as already observed, have been rather due to some intermediate agency to be sought perhaps on the North African Coast. But in any case it implies a considerable Western extension of the Aegean enterprise. It is probable, indeed, that long before the days of Phoenician or later Greek activity in the West, silver and tin reached the East Mediterranean basin in Minoan bottoms: and it may eventually be found that there were mainland staples on the Iberic side. Tarshish-Tartêssos itself has a suffix characteristic of local names throughout the prehistoric Aegean world, and Massalias was a river-name of Crete.[2]

Iberic inscriptions on Minoizing pottery.

This surprising westward diffusion of Minoan influences must henceforth be taken into account in all matters that concern the early culture of the Iberic Peninsula. It is, therefore, of great interest to find on one fragment of painted pottery,[3] belonging to the class so intimately related to Minoan prototypes, what must certainly be regarded as part of an inscription (Fig. 44).[4] The letters seem to belong to the Iberic class, the characters of the lower line probably representing ILUN. This was found, with many other fragments of the Ibero-Minoan class, at Meca, North-West of Alicante, on a site which, according to Professor Paris, shows no sign of later Greek influence. Another fragmentary inscription is on the pedestal of a vase in the Tarragona Museum.[5]

Fig. 44. Painted Iberic sherd from Meca, near Alicante, with inscription.

Is it possible, then, that, as seems to have been the case in Cyprus and elsewhere, the Late Minoan script may have left its mark on the alphabets of the Iberic group?

Elements of Iberic scripts neither Phoenician nor Greek.

It is certain that both branches of the Iberic alphabet—Celtiberian and Turdetan—exhibit a variety of signs which cannot by any possibility be derived from the Phoenician or the Greek. Thus out of twenty-one letters of what may be supposed to have been the original alphabet, fifteen are Greek or Phoenician characters

[1] See *Myc. Tree and Pillar Cult*, pp. 27, 28, and Fig. 15.

[2] Cp. Fick, *Vorgriechische Ortsnamen*, p. 25.

[3] P. Paris, op. cit., ii. p. 100, Fig. 202. From Meca, near Almansa, South-West of Valencia.

[4] P. Paris, op. cit., pp. 100, 101, Fig. 203. Only three complete signs are visible.

[5] Excluding the later *ypsilon* and *omega*. For summary purposes of comparison I have taken the Table of the Celtiberian and Turdetan alphabets in P. Berger's *Histoire de l'Ecriture dans l'Antiquité*, p. 336.

or easy derivations of such, but there are also eight alternative forms of these apparently of extraneous origin, including representatives of *beth*, *mem*, *vau*, *tsade*, and *koph*, which also present non-Phoenician types. The number of foreign forms thus amounts to fourteen, and very nearly balances the Greco-Phoenician ingredients. From the comparisons instituted in Table VIII (Fig. 44*), which can only be regarded as of a rough preliminary nature, it will be seen that of these fourteen foreign signs of the Iberic alphabets, eight are identical with Minoan linear forms, while two forms of *chêth* present a distinct approximation to them.

Fig. 44* (Table VIII). Preliminary comparisons of Minoan and Iberic linear forms.

As the values of the Minoan signs are unknown, and accidental resemblances between more or less simple geometrical characters may easily occur, it would be imprudent to draw too absolute a conclusion from these comparisons. It is not perhaps going too far, however, to assert that they do supply a prima facie case in favour of Minoan influences on the Iberic script. One point, indeed, is specially noteworthy. The signs of the Cretan system given in the last place of the Table, , must, as already noted above,[1] be certainly regarded as the linearized derivatives of a pictograph representing the human head and neck, analogous to the Egyptian *ḥr*. In the earlier type the two ears are still seen; in the

May we here too trace Minoan influence?

[1] See pp. 87, 88.

derivative form which answers to the Phoenician *koph* these have been lost. It is, therefore, specially interesting to find this Minoan 'head' sign in its derivative form appearing in the Iberic alphabets as an alternative for *resh* (or *rôsh*), which is universally acknowledged to mean 'head' and which seems to represent a profile view of the human head.[1]

I. § 12. SURVIVAL OF MINOAN ELEMENTS IN CRETE AND THE TRADITION OF THE NATIVE SYSTEM OF WRITING

Depopulation of Crete on break up of sea-power.

Crete, as already observed, was never more densely populated than in the Third Late Minoan Age. But the break up of the Minoan sea-power and the consequent loss of the oversea commerce on which large numbers of the inhabitants must have depended for their livelihood, would naturally be productive of a great movement of emigration. Desperate ventures appear to have been undertaken in various directions, and the Viking descents on the Nile-mouths, in which elements of the Cretan population seem to have taken part in company with Akaiuasha and others, may have been mainly the result of bitter need at home.

Legendary expedition of Minos to Sicily.

It is likely enough, therefore, that there was a large element of truth in the Praesian tradition preserved by Herodotos—flattering no doubt to Eteocretan vanity—which accounted for the Dorian settlement by a great depopulation of the island. The cause actually assigned to this by the native tradition[2] was, in the first place, an abortive expedition of Minos to Sicily, which led, after his death on Sicilian soil, to a settlement of his followers in Iapygia. It was also partly ascribed to the exhaustive effects of the Trojan War, and to a famine and plague that succeeded it.

Gradual transformation.

The process by which the greater part of Crete passed into Greek hands is as yet very imperfectly ascertained. The phenomena with which we have to deal point, however, to a comparatively slow progressive transformation rather than to any sudden wholesale displacement of an old form of culture by a new. There was doubtless a good deal of local dislocation. Thus at Knossos the 'House of Minos' was now entirely deserted, even by the later squatters within its walls, never again, so far as it is possible to judge from its overlying strata, to become the scene of human habitation. Its immediate dependencies, and the adjoining part of the town, were also for a time left desolate,[3] and only reoccupied at a time when iron had completely superseded bronze for cutting purposes, and the Cretan 'Geometrical' style was already in existence. That there was here a real break is further shown by

Partial break of continuity at Knossos.

[1] See above, p. 92, note 3, under R.

[2] Herod. vii. 171.

[3] So, too, the neighbouring cemetery of Zafer Papoura ceased to be used at this time (*Prehistoric Tombs of Knossos*, pp. 133 seqq.). At some distance to the West of this a new 'Geometrical' cemetery has now been discovered.

the fact that the new occupants of the site had lost, partially at least, the tradition of the old road-lines.

Survivals of Minoan culture.

But although there are traces on the site of Knossos itself of at least a partial interruption, the continuity of the insular culture was not entirely broken. The evidence supplied by other Cretan sites in fact enables us to bridge over any local gaps. Such mainland features as the Continental form of sword and the safety-pin were themselves of very gradual diffusion and already begin to make their appearance in 'Late Minoan' deposits. Even the great change in sepulchral custom from corpse burial to cremation was effected in the same family vault. The old tradition is visible in the *tholos* form of the tombs themselves, in the continued use of the characteristic 'stirrup-vase', in the perpetuation of many decorative motives of purely 'Minoan' origin. All this, no doubt, was to a certain extent the work of intrusive elements from the Mainland side, who had partly themselves absorbed the kindred civilization of Mycenae. Still, whatever ethnic changes may at this time have been working themselves out, this Earliest Iron Age culture of Crete must, from the archaeological point of view, be described as 'Sub-Minoan'.[1]

'Sub-Minoan' stage.

Fig. 45.

'Sub-Minoan' remains at Erganos.

One of the best examples of this transitional 'Sub-Minoan' stage in Central Crete at present to hand is supplied by the Cemetery of Erganos, not far from the site of Lyttos.[2] We see here bee-hive tombs, shrunken in size like those that characterize the cemeteries of the succeeding pure 'Geometrical' age in Crete, with remains of skeletons in squatting positions in place of the more or less extended skeletons of the Late Minoan graves. The pottery found in these tombs is of a debased quasi-Minoan class with decoration showing Geometrical tendencies, and in one case an ossuary vessel was found containing unburnt bones, but suggesting a kind of assimilation to a cremation-urn. The absence of arms and implements in these graves implies the use of the more perishable iron in place of bronze.

Inscribed clay disk from Erganos.

It is therefore of special interest that in this typically Sub-Minoan Cemetery of Erganos there should have been found an object which seems to attest some continued knowledge of the linear form of script. This is a clay disk, reproduced above in Fig. 45, to which the Ephor Dr. Hazzidakis kindly called my attention. The sign here repeated is a frequent character of the Linear Script B, recurring

[1] For this 'Sub-Minoan' Early Iron Age in Crete and the survival of Minoan elements throughout the Geometrical Period there, see *Preh. Tombs of Knossos*, pp. 134, 135, and compare Orsi, *Am. Journ. of Archaeology*, i (1897), pp. 252 seqq. L. Mariani, op. cit., v (1901), pp. 305 seqq. S. Wide, 'Nachleben mykenischer Ornamente' (*Mitth. d. k. d. arch. Inst.* (Athens), 1897, pp. 234 seqq.). H. A. Boyd, 'Excavations at Kavousi in 1901' (*Am. Journ. of Archaeology*, v (1901), pp. 146 seqq.).

[2] A preliminary notice of the Cemetery of Erganos is given by Halbherr, *Am. Journ. of Archaeology* (1901), pp. 271 seqq.

in the group , which appears before the totals in lists and additions of accounts. The inscription seems to read from right to left, the repeated being followed by a sign representing its half, and the whole by a short stroke usually signifying the end of a word.[1]

Eteocretan survival in East and West.

The indigenous Eteocretan element continued, as we know, to maintain an independent existence in the Eastern part of the island and in the West about Kydonia, and, from the extensive survival of the old place-names,[2] it must also largely have persisted in central Crete. Even in the central region no single one of the leading cities, as mentioned already in the *Iliad*,[3] bears a Hellenic name, though Gortyna may lay good claim to a 'Pelasgian' origin.[4] It is possible that Tritta, a name at one time borne by Knossos, should be compared with the Thessalian *Trikka*,[5] and would therefore evidence the temporary ascendancy there of immigrants of the same 'Pelasgian' stock.

Knossos and its abiding traditions.

But the abiding name of the great Cretan city, Knossos[6] itself, takes us back again to the old underlying element which links on Crete, together with so large a part of mainland Greece and the Aegean region, to the same ethnic family as that anciently diffused throughout Asia Minor.

Minos and Labyrinth.

The name of Minos itself—so faithfully perpetuated by the local tradition—has affinities in the same direction. The Labyrinth too, under the Hellenized form Λαβύρινθος, finds both its root and its characteristic suffix in the same linguistic family. The *-nthos* suffix is the regular equivalent in the Western branch for *-ndos*, *-nda*, among the primitive population of Asia Minor. *Labyrinthos* was therefore legitimately compared by Max Meyer[7] and Kretschmer[8] with the Carian *Labraundos* and *Labraunda*, the latter a principal seat of the worship of a God whose fetish form was the double-axe, the native name of which, *labrys*, supplies a natural derivative for that of the sacred spot.[9] This philological comparison has now received a most striking confirmation from the results of Cretan excavation.

[1] Dr. A. Taramelli, in his account of the Cemetery of Kourtes, belonging to the same transitional 'Sub-Minoan' period, figures a heart-shaped pendant of jasper engraved with two linear signs and what seems to be a combination of and (*Am. Journ. of Arch.*, v (1901), p. 299, Fig. 3). This stone was in a peasant's possession, and Dr. Taramelli opines that it came from the necropolis. The conclusion is probable, but it does not reach certainty.

[2] For the Cretan place-names in their relation to those of prehistoric Greece and Asia Minor see especially P. Kretschmer, *Einleitung in die Geschichte der griechischen Sprache*, pp. 404 seqq., and now A. Fick, *Vorgriechische Ortsnamen* (Göttingen, 1905), pp. 6 seqq.

[3] The Cretan towns enumerated in the Catalogue (ii. 646 seqq.) as under the chieftainship of Idumeneus are Knossos, Gortyna, Lyktos (Lyttos), Miletos, Lykastos, Phaestos, and Rhytion, all in the central region.

[4] Cf. Fick, op. cit., p. 21. It was said (Stephanos, s. v. Γόρτυν) to have been also called, like the chief town of Pelasgiotis, 'Larissa'—this name, no doubt, as at Argos, referring to its citadel.

[5] *Cretan Pictographs*, &c., p. 89 (358) note.

[6] Cf. p. 58. The ultimate triumph of the civic term 'Knossos' may either be due to the reversion to an older name of the place, or to a renaming at the time of some restored ascendancy of the ancient stock within its walls. Another ancient name for Knossos, also borne by the neighbouring stream, was Καίρατος (Strabo, x. 4. 7). Fick (op. cit., p. 29) compares it with Γείνατος, Μίλατος, &c.

[7] 'Mykenische Beiträge' (*Jahrbuch d. k. deutschen arch. Inst.* vii (1892), 191).

[8] *Einleitung*, &c., p. 404. See too Fick, op. cit., p. 28.

[9] Max Meyer (loc. cit.) writes of the double-axe as it it was simply a 'sacred symbol' of the God, 'der—von λάβρυς Axt--Λαβρύνθιος geheissen haben muss bevor man den Namen seines Hauses zu Λαβύρινθος entstellte.' But the double-axe itself was the fetish form of the God or Goddess; and the name in its variant forms is therefore capable of the simple explanation as 'the place of the *labrys*', which is more in accordance with the ideas of primitive religion. Prof. Burrows (op. cit., pp. 117, 118) and Prof. Conway (ibid., pp. 227 seqq.) would trace a connexion between the first elements of Λαβύρινθος and the Greek λαύρα = a passage.

The Palace at Knossos proves to have been at the same time a sanctuary of the Cretan Nature-Goddess and her male satellite, whose principal cult objects, here as elsewhere in Minoan Crete, were the Double-Axes. The sacred weapon is not only constantly incised on the building-blocks themselves, but it is seen inserted into the wooden columns of the pillar-shrines or between the altar-horns of the domestic chapels; it decorates the ceremonial vessels and, as in the Carian cult, appears in the hands of the divinity or superposed over the head of the sacred bull.[1] The tradition which gave the name of 'Labyrinth' to the great Minoan foundation at Knossos thus proves to have a solid foundation in fact,[2] and the name, in its signification of 'the place of the "double-axe"', represents, as already pointed out, a survival of a Cretan dialectic form of the once widespread aboriginal language which had its branches East and West of the Aegean.

Surviving elements of older cult at Knossos.

In this as well as in many other aspects of the local lore we trace a very considerable survival of the indigenous Minoan element at Knossos,[3] and in the surrounding district. The Minotaur itself and the symbolic form of the Labyrinth as a kind of key pattern or developed *svastika*, as seen on Knossian coins, find their prototypes among the earlier remains. The cult of the Cretan Mother-Goddess, later identified with Rhea, was not forgotten; and, though only the ruins of her House could be pointed out, they were still shaded by her ancient cypress-grove. We shall see below that even the tradition of the former existence of Minoan script was not wholly lost here. It may be inferred that at Knossos the process of Hellenization was exceptionally gradual and that its inhabitants long remained in a bilingual stage.

Crete outside scope of *Iliad*.

It is noteworthy that, except for the enumeration in the Catalogue of a certain number of cities (all with non-Hellenic names) and the mention of Idomeneus, Crete on the whole lies outside the scope of the *Iliad*. Even at the time when the *Odyssey* took its final form the ethnographic sketch there given of the Cretan population shows us the Dorians only as one among several elements—Achaean, Eteocretan, and Pelasgian. The process by which the Dorian speech and institutions finally attained predominance in the island must have been very gradual, and could

Dorian conquest gradual.

[1] In this early religious stratum the principal divinity is the Goddess.

[2] For the identification of the Palace at Knossos with the 'Labyrinth', see *Myc. Tree and Pillar Worship*, pp. 11 [109] seqq.; 'Knossos', *Reports*, 1901, p. 54; 1902, pp. 100–4; 1903, pp. 35–8, &c. Mr. H. R. Hall, 'The Two Labyrinths' (*J. H. S.*, xxv, 1905, pp. 320 seqq.), who accepts this identification, makes some interesting comparisons with the Egyptian Labyrinth, the work of 'Lamaris' or 'Labaris' (*Ne-maat-ra* the *praenomen* of Amenemhat III). He adopts the suggestion that the word 'Labyrinth' was transferred from Crete to Egypt, the form 'Labaris' being due to a kind of 'Volksetymologie'.

[3] Hoeck, *Creta*, iii. 417 (and cf. ii. 426), had already remarked that while Lyttos supplies an example of a thoroughly Dorianized city, the Minoan traditions of Knossos and its friendly relations with Athens point to the existence there of a considerable non-Doric element. Lyttos, not Knossos, was the model Doric state. It must, of course, be recognized that in later times Knossos, both in its speech and constitution, took over the essential features of a Dorian City. The Dorian tribe of the *Pamphyloi* is found here ('Treaty between Knossos and Gortyna,' Halbherr, *Mon. Ant.*, i. 49). Dr. R. Meister (*Abh. d. k. Sächs. Ges. d. Wissensch.*, xxiv. 3, 1904) has further shown that an exceptionally pure form of Doric was spoken at Knossos (as at Gortyna). But it should be remembered that the purest English is spoken by the Welsh, to whom it was originally an acquired language, while the *Platt Deutsch* Hanoverians are said to speak the best High German.

hardly have completed itself even in Central Crete before the beginning of the historic period. The large survival of old traditions, moreover, and the absence, above noted, of any clear break in the insular culture, tends to confirm the unanimous testimony of ancient tradition, that the Dorian occupation in Crete was due in the main to peaceful settlement. It is a significant symptom that the Dorian legend adopted Minos and even made him a grandson of Tektamos, who was said to have led their first colony from the Thessalian Olympos.

The Dorian adoption of Minos.

Adoption and adaptation were the order of the day. Religious elements were taken over wholesale. The cult of the great Cretan Nature-Goddess lived on in various guises, and her offspring became a Zeus who was very different from the Hellenic. The 'adoption' of Minos was itself the formal expression of an accepted indebtedness in the domain of law and politics. The Early Iron Age culture of Crete as represented by the Greek settlers perpetuated, to a degree which is as yet very imperfectly realized, the Late Minoan and Sub-Minoan traditions. The rise in Crete of the earliest Art School that could be called Greek was itself largely due to this assimilation of elements inherited from the old indigenous civilization. Already in the eighth century before our era—as we see from the bronzes of the Cave Sanctuaries of Ida and Dicta, and of the Temple of the Dictaean Zeus[1]—the artistic products of Crete were ahead of those of the rest of the Hellenic world, and the place subsequently attributed to the masters of the 'Daedalid' School of Sculpture, Dipoenos and Skyllis, confirms this Cretan hegemony.

Minoan traditions favour early revival in Crete.

The Daedalid School.

In view of this taking over of Minoan elements by the new-comers in the island, the question naturally suggests itself—Is it possible that some knowledge of the Minoan script may have been also disseminated among the Greek settlers?

Did a knowledge of Minoan script survive?

The possibility of such a phenomenon is much strengthened by the analogy supplied by Cyprus, where, as we have seen, the peculiar syllabary in use by the Greek colonists down to a late date presents a series of resemblances with the Cretan linear characters.

There was then no inherent reason why in Crete, where the ethnic transformation was of a similar kind, the Dorian or other Greek settlers should not have adopted the Minoan system of writing. The evidence indeed of such a taking over is in this case deficient, though it is possible that certain archaic Greek letter-forms used in Crete were influenced by early Cretan characters, while ⧖, which may be a simplification of the double-axe sign of the hieroglyphic series, appears as a mark of division.[2] In favour of some survival of the old script, of which we have at present

[1] The recent discovery by the Italian Mission of the archaic temple of Rhea at Prinia near Gortyna has afforded further brilliant illustrations of this pre-eminence.

[2] The possible operation of these influences was suggested to me by Professor Halbherr, and will be found discussed in my *Cretan Pictographs*, &c., p. 91 [360]. The forms there referred to were ◎ and ◎ for ○ at Lyttos (Comparetti, *Leggi di Gortyna*, &c., p. 201), recalling the pictographic signs (Nos. 3 and 109 below); ⋌ for *vau* at Eleutherna (op. cit., p. 418, Inscr. 194, l. 6) and Oaxos (op. cit., p. 402, Inscr. 187, l. 3), for which a better comparison than that given in my former work is supplied by

no remaining trace, might certainly be urged the quite exceptional prevalence of the literary habit among the Dorians in Crete during the archaic period. It is well known that the early Greek inscriptions of the island, which include the Laws of Gortyna, far exceed in volume those of the whole of the rest of the Hellenic world.

Survival of old stock at Praesos and Polichna.

It is still more inherently probable that a knowledge of the Minoan linear script should have been preserved awhile by the remains of the indigenous Cretan stock, who after the days of the Greek colonization still held their own in the extreme East and West of the island. The principal strongholds of these were Praesos—where, as we now know from Greek-written inscriptions found there and in the neighbourhood,[1] the native language survived to the centuries immediately preceding our era—and Polichna near Kydonia, within hail of the White Mountains and the fastnesses of the later Sphakiotes. The fact that the late Eteocretan inscriptions were written in Greek characters shows that the native script, if a knowledge of it was preserved, was incapable of competing with the perfected alphabetic form of writing then in vogue among the predominant element in the population. The possibility, however, cannot be excluded that some earlier records in the Minoan script may have existed among these surviving representatives of the old stock, who had thus to the last retained their native language. There was evidently a considerable body of native tradition from which the accounts of the early Cretan history and religious beliefs were derived. Herodotos expressly mentions the Praesians as his informants.[2] The ultimate sources of many of Diodoros's very detailed notices seem also to have been of Eteocretan origin. One is tempted to ask whether the hymns of the Curetes, of which we now have a fragmentary Greek version from the temple of the Dictaean Zeus, may not have been derived from a vernacular original in the native script.

Eteocretan inscriptions in Greek letters.

Praesian tradition.

Whether or not some sacred guild, like that of the Curetes, may still have possessed such documents at a time when they were not 'understanded of the people', the native Cretans seem to have preserved a distinct tradition that the Art of Writing was to them at least no new invention. At times they seem to have explained away the Phoenician attribution by a verbal confusion between Φοῖνιξ in its later ethnographic sense of a Phoenician and φοῖνιξ a palm-tree, and asserted that letters had been originally written on palm-leaves,[3] a material which, on Pliny's showing, was

Surviving records of old Cretan script.

a sign of the linear class A. ⧖ appears as a mark of the separation between two disconnected clauses at Gortyna (op. cit., p. 117, col. ix, l. 43) and again, in a horizontal position, at Lyttos (op. cit., p. 534, Inscr. 203, l. 7). It is true that two of the comparisons above suggested are with linearized signs of the hieroglyphic or conventionalized pictographic series. They may, however, have survived as religious marks or symbols.

[1] Professor R. S. Conway, in his recent analyses of these inscriptions (*B. S. A.*, viii. 257 seqq. and x. 115 seqq.), comes to the conclusion that the language was Indo-European, akin to the Venetic. But there are, as already stated, strong indications that the original 'Minoan' element bore affinities with the Carians and their kinsmen. Hence Professor Burrows (*The Discoveries in Crete*, first ed., pp. 152 seqq.) has been led to suggest that these 'Eteo-Cretans' represent later intruders from the West, and are not the old Cretans after all. It must be said that, if this conclusion were borne out, it would involve great complications. It may be noted, in connexion with it, that the 'Eteo-Carpathians' of the neighbouring island, mentioned in the Athenian tribute lists, would then be in the same case.

[2] Herod. vii. 171 . . . ὡς λέγουσι Πραίσιοι.

[3] Suidas, Δυδοὶ καὶ Ἴωνες τὰ γράμματα ἀπὸ τοῦ Φοίνικος τοῦ Ἀγήνορος εὑρόντος ἔλαβον. Τούτοις δὲ ἀντιλέγουσι Κρῆτες, ὡς εὑρέθηναι ἀπὸ τοῦ γράφειν ἐν φοινίκων πετάλοις.

used for this purpose before papyrus.[1] According to an account preserved by Diodoros,[2] the Cretans imparted the first knowledge of letters to the Phoenicians themselves.

Memorial festival of old stock near Knossos.

Knossian account of invention of letters.

He tells us that by the Theren stream, in the neighbourhood of Knossos, the country people—largely no doubt representing under a Hellenized guise the old indigenous race—came together every year to celebrate the nuptials of the Cretan Zeus and his consort. Sacrifices were made, and the actual marriage ceremony was rehearsed through some kind of religious play 'in the manner that had been handed down from ancient times'. Diodoros next proceeds to summarize what seems to have been the gist of the religious doctrines conveyed by this commemorative ritual. The Cretan Zeus is here made to work out a comprehensive scheme for the physical, industrial, and intellectual culture of mankind by the agency of his various children. Amongst these, continues our informant, 'the Father assigned to the Muses the invention of letters and of poetry. And the Cretans have an answer to those who attribute the invention of letters to the Syrians, and who say that the Phoenicians learnt them from these and passed them on to the Greeks, this being done through Cadmus and those with him sailing to Europe, so that the Greeks call the letters Phoenician. To this they reply that the Phoenicians were not the original discoverers of letters, but that they simply changed their shapes. Owing, however, to the fact that the generality of mankind use these letters, they acquired the name "Phoenician".'

1. § 13. WAS THE DISCOVERY OF THE MINOAN WRITING ANTICIPATED BY CLASSICAL ANTIQUITY?

Classical records of discoveries of prehistoric inscriptions.

It may be suspected that the Cretan tradition of the invention of letters would hardly have subsisted unless there had been some actual knowledge of existing documents in an earlier script in the Greek period of the island. In this connexion it is interesting to notice that more than one discovery of such documents is recorded during the Classical age. The frequency of these accounts is indeed somewhat remarkable, though their value is very uneven.[3]

The discovery of the Late Minoan amphora with painted characters at Orchomenos[4] lends a special interest to a more ancient find of a prehistoric inscription in the same

[1] Plin. *H. N.* xiii. 77 'in palmarum foliis primo scriptitatum.'

[2] Diod. v. c. 74 φασὶ (sc. οἱ Κρῆτες) τοὺς Φοίνικας οὐκ ἐξ ἀρχῆς εὑρεῖν ἀλλὰ τοὺς τύπους τῶν γραμμάτων μεταθεῖναι μόνον. See on this passage my *Cretan Picts.*, p. 103 [372].

[3] Several instances are collected by Dr. W. Larfeld, *Handbuch der griechischen Epigraphik*, 1907, p. 173, to which I may here refer.

[4] See above, p. 57.

region. Plutarch, in his work on the Genius of Socrates,[1] relates with great circumstantiality of detail how, at the time of the Spartiate occupation of Boeotia, Agesilaos opened a tomb—no doubt a prehistoric *tholos* like the 'Treasury of Minyas'—that was pointed out, near Haliartos, as that of Alkmênê. Inscribed tablet found in tomb of Alkmênê.

Within, besides the body, 'there was found a small bronze armlet and two clay amphoras, filled with earth indurated by time, and a tablet of bronze containing many letters, which excited wonder from their appearance of great antiquity. For nothing could be understood from these, though on washing the bronze they came out clearly —the type of the letters being outlandish and most like the Egyptian.' Plutarch further relates that Agesilaos sent a copy of it to the King of Egypt, asking him to show it to his priests. The priest Chonouphis seems to have been much puzzled by it, and spent three days 'hunting out various kinds of characters in old books'. He finally reported that the writing belonged to King Proteus's time—in other words, to the Age of the Trojan War—and contained a general exhortation to the Greeks to found a contest in honour of the Muses, and, 'setting arms aside, to devote themselves to the peaceful rivalry of letters and philosophy.'

In other words the pundit, in spite of his researches, was unable to interpret the inscription by the light of Egyptian hieroglyphics. This negative result confirms a presumption which, in view of the recent discoveries of prehistoric script, could not fail to arise. It cannot now be thought improbable that the tablet may have been engraved with characters in use under the Minyan dynasty in Boeotia, the name of whose founder has been legitimately compared with that of Minos. Although no inscribed tablets of metal have been as yet discovered among the Minoan remains of Crete, this negative phenomenon proves little when we bear in mind how carefully the great Palaces seem to have been ransacked for metal objects at the time of their desertion and destruction. Absence of Minoan records on metal explained.

It is worth recalling, moreover, in this connexion, that the contemporary Hittites of Asia Minor, who possessed a system of writing in some respects resembling the Minoan, at least in its earlier hieroglyphic stage of evolution, had a certain predilection for inscriptions on metal. Not only are their inscribed signets often composed of bronze or precious metals, but the same usage was also applied to larger documents. Thus when the ambassadors of the great Hittite King Kheta-sira went to Egypt to make a treaty with Rameses II they bore with them a silver plate on which the Hittite text of the treaty was engraved in the native language and character.[2] It Egypto-Hittite treaty on silver plate.

[1] *D. G. S.*, capp. v, vii. Attention was called to this passage by M. Salomon Reinach (*Anthropologie*, 1900, pp. 499 seqq.), who brought the unknown writing of the tablet there described into relation with the newly discovered Minoan script (as against Foucart's view—*Recherches sur l'origine et la nature des mystères d'Éleusis*, 1895, p. 10). M. Reinach points out that 'King Proteus, the Kêtês of the Egyptians, belongs to the period of the Trojan War' (Diod. i. 62), which would approximately correspond with the close of the Third Late Minoan Period. He resided in Carpathos, and thus represents the penetration of 'Aegean' elements into Mainland Greece. The passage of Plutarch was independently cited in the same connexion by Dr. L. R. Farnell, *Class. Rev.*, 1902, p. 137—'An allusion to the Mycenaean Script in Plutarch.'

[2] Lepsius, *Denkmäler*, iii. 146; Brugsch, *Gesch. Aeg.*, 518, &c.; De Rougé, in Egger, *Études historiques sur les traités*, &c., pp. 242 seqq.; E. Meyer, *Gesch. des Alterthums*, i. 285; Wright, *Emp. of Hittites*, pp. 65 seqq.

is possible that both the bracelet and the tablet found in the 'Tomb' of Alkmênê were really of silver, which from the amount of alloy that it generally contains often conveys the idea of bronze to non-expert eyes—the fact, indeed, that the inscription was brought out clearly by the simple process of washing weighs in favour of this view, and the ornaments of the distinguished dead were also more likely to have been of precious metal. The use of bronze as a medium on which to cut prehistoric characters is, however, illustrated by more than one piece of evidence. Isolated signs have been found incised on a bronze axe[1] and arrowhead[2] of Late Minoan fabric, and also on a bronze axe-hammer from Delphi,[3] and reference has already been made to a series of inscribed ingots.

Was the discovery of the Knossian tablets anticipated?

The account of the finding of the inscribed table in the 'Tomb of Alkmênê' leads to the still more interesting question—Whether the recent discovery of the clay documents contained in the chests of the Minoan Palace was not itself anticipated in ancient times.

Dictys Cretensis's Chronicle of the Trojan War.

In the fourth century of our era[4] a certain L. Septimius wrote what purported to be a Latin translation of a Greek chronicle of the Trojan War by Dictys of Crete. Septimius dedicated his work to Q. Aradius Rufus, probably the second high official of that name who was *Praefectus Urbi* in 376. From the literary flourishes with which the author sought to adorn his work, and the adaptations from Sallust, Virgil, Cornelius Nepos, and other Latin writers with which it is interlarded, advocates were found of the view that the whole was a fabrication of Septimius, and that no Greek original had really existed.[5] All doubts on the matter have now, however, been finally removed by the discovery, due to Messrs. Grenfell and Hunt's researches at Tebtunis, of a substantial fragment of the original Greek work.[6] The MS. is written on the back of a papyrus giving a series of revenue returns dating from the year A. D. 206, and *a priori* considerations as well as the palaeographical evidence combine in favour of the view that the literary text on the *verso* is not appreciably later in date. This discovery, therefore, throws back the composition of the work itself to the second or even the first century, and to a time at any rate not

Greek original of Dictys's work.

[1] *Cretan Picts.*, &c., p. 11 [280], Fig. 6.

[2] From the Dictaean Cave.

[3] See above, p. 59, Fig. 35.

[4] See Teuffel, *Geschichte der römischen Literatur, neu bearbeitet von L. Schwabe* (ed. 1890), § 423 (Eng. Trans., ii. pp. 375 seqq.). The fact that the Governor of Crete is spoken of as 'Consularis' is alone sufficient to show that Septimius's work was not composed earlier than the fourth century (cf. Marquardt, *Röm. Staatsverfassung*, i. 549).

[5] Notably F. Meister, in the preface to his edition of Septimius (Leipzig, Teubner); H. Durger, *De Dictye Septimio* (*Programm des Witzthumschen Gymnasiums zu Dresden*, 1878), 1872; W. Greif (*Neue Untersuchungen zur Dictys- und Daresfrage*, 1900). But Ferdinand Noack (*Philologus*, 6ter Suppl.-Band, 1893, pp. 401–500) had adduced cogent arguments to show that the references to Dictys's 'Chronicle' in Byzantine writers such as Malalas (sixth century), the Ἐκλογὴ Ἱστοριῶν, and Cedrenus (eleventh century) were based, in different degrees, on a late Greek version parallel with the Latin but independent of it, and that both the Byzantine and the Latin version went back to a Greek archetype of considerably earlier date.

[6] Grenfell and Hunt, *The Tebtunis Papyri*, Part ii, 1907. The fragment seems to confirm Noack's theory of a Byzantine intermediary version between the archetype and the excerpts found in Malalas on the one side and in the Ἐκλογή and Cedrenus on the other. Regarding the relation of the Greek original to Septimius's work, the editors of the newly found fragment note that 'apart from unnecessary verbiage and occasional minor distortions the Latin version follows the original faithfully enough'.

remote from that in which it was professedly written—namely, the reign of Nero. Its historical setting in this way gains a wholly new importance.

The work itself, of course, belongs to the class of literary impostures, but the point of present interest is an alleged discovery on the site of Knossos by which the 'Chronicles of Dictys' were said to have been first brought to light.[1]

Alleged discovery of inscribed tablets at Knossos.

According to the account preserved in the prologue of this work, as given in Septimius's version, Dictys, who as an eyewitness and a companion of the Cretan chiefs Idomeneus and Meriones had written his account of the Trojan War, returning to Knossos in his old age ordered it to be enclosed in a tin chest and placed in his tomb. In the thirteenth year of the reign of Nero, however, an earthquake that had caused a great overthrow at Knossos exposed the interior of the tomb of Dictys. Some passing shepherds, observing the chest, opened it in search of treasure, but found instead documents of lime-bark[2] inscribed with letters that were unintelligible to them. They took them accordingly to their master Eupraxides, and he, conjointly with the then governor of the island, Rutilius Rutus, presented the documents to Nero, supposing that they contained secret matters.

The unknown script interpreted as Dictys's Chronicle.

The Emperor, believing that the letters were Phoenician, called in Semitic experts, and they (not unnaturally at Nero's bidding!) forthwith proceeded to interpret them. On learning that these were the memoirs of one of the ancients who had been present at the siege of Troy, Nero further commanded that they should be translated into Greek, and placed the work in his Greek library under the title of 'Dictys'.[3]

The very fact that this 'Auncient Historie and trewe and syncere Chronicle of the Warres between the Grecians and the Trojans'—to quote the title of its earliest English adaptation by John Lydgate[4]—was a fictitious compilation does not necessarily prove that the account of the discovery on the site of Knossos was itself a pure invention. There was, indeed, all the greater need to tack on the work to some genuine find. The details, so far as they go, fit in well with the history of Nero's reign and with his personal fondness for the Tale of Troy. As a matter of fact the thirteenth year of Nero's reign corresponds with his mad progress through Achaia, and Crete was actually ravaged by an earthquake at that period.[5] But the effect of an earthquake shock, especially at the more declivitous Southern end of the Palace site of Knossos, might well have been to bring to light some cist containing a hoard of inscribed tablets. The half-burned clay slips themselves might well be confused with

Story probably based on real exposure of cist containing tablets through earthquake at Knossos.

[1] My friend Mr. F. C. Conybeare first directed my attention to the statement of the professed translator of Dictys regarding the discovery of his materials.

[2] *Tilias* in the prologue, *libros ex philyra* in the dedicatory epistle.

[3] In the dedicatory letter of Septimius the documents are spoken of as written in Greek but with Phoenician characters. This seems to be a travesty of the original version as it appears in the prologue. In c. xvii we have the sufficiently vague statement: 'Haec ego Gnosius Dictys, comes Idomenei, conscripsi oratione ea quam maxime inter tam diversa loquendi genera consequi ac comprehendere potui, litteris Punicis ab Cadmo Danaoque traditis.'

[4] Lydgate dedicated his metrical adaptation of Dictys and Dares of Troy (based on that of Guido dalle Colonne) to Henry VI. I quote from the title of the edition published by Robert Braham in 1555.

[5] Cf. W. Ramsay, art. 'Dictys' in Smith's *Dict. of Biog.*

bark documents, and the Minoan script of prehistoric Crete would very naturally be confounded with 'Phoenician' characters. The tablets, as we have seen, had been generally placed in wooden chests, of which only charred fragments remained, often, apparently, deposited in stone cists—either gypsum or, in the case of the inscribed tablets in the Temple Repository, of limestone. But the stone cists or κασέλλαις of the Palace presented one remarkable feature which has been ascertained in a series of examples, and was possibly common to all. They were lined with lead sheeting. Some inner casing, then, of this material may account in the most natural way for the statement that the mysterious documents found at Knossos in Nero's time were contained in a 'chest of tin'.[1]

Lead-lined cists confused with 'chests of tin'.

[1] *Prologus*, l. 11, 'in stannea arcula.' In the dedicatory epistle it is described as 'loculum stanno affabre clausum'. It may be observed that the white appearance of the decomposed metal, as seen in the Knossian cists, would have almost infallibly led an ancient observer to describe it as tin (*plumbum album*) rather than lead (*plumbum nigrum*).

PART II

THE HIEROGLYPHIC OR CONVENTIONALIZED PICTOGRAPHIC SCRIPT OF CRETE WITH ITS ANTECEDENTS AND AFFINITIES

II. § 1. PRIMITIVE LINEAR SIGNS AND FIGURES

Primitive picture-writing.

In considering the origins of the conventionalized types of the Cretan script it is extremely difficult to lay down any definite line of demarcation between these and the more primitive methods of graphic expression that had preceded them. Picture-writing in its purest form has, of course, a much greater faculty of expression and adaptation to special circumstances. The savage who has recourse to it draws from his immediate surroundings. He wishes, perhaps, to record some hunting scene, and gives a summary rendering of the hunters present, of the weapons used, or of some special form of trap, and of the slain animals—introducing, it may be, certain elements borrowed from gesture language to give point to his record.

So far as this primitive pictography is more or less faithful to nature, and in a proper sense pictorial, it is of course easy to distinguish it from the more advanced stages in the history of writing—such as the hieroglyphic. But in many cases the superficial features do not so easily lend themselves to such distinction. The rendering of some of the forms is often so linear and summary, like the rude scratchings of a child on a slate, that it is difficult or even impossible to recognize the object intended. Other representations of objects or ideas, once adequately delineated, may in the course of generations undergo a certain formative decay, analogous to the phonetic decay of language, till the meaning associated with them has no obvious relation to their form. Figures in constant use would be more liable to undergo this simplification than those used for occasional purposes, and thus these skeleton forms, the meaning of which is only traditionally known, are continually interspersed with those whose fuller outlines sufficiently declare their meaning. These linearized signs, often so purely alphabetiform in appearance, are of such antiquity that, as already noted, groups of such are already introduced beside the more elaborate and often highly artistic designs on the works of the Reindeer Period. And, as will be seen from the comparative Table given above,[1] the actual genesis of these archaic linear signs can in several cases be traced back step by step to their pictorial originals.

Summary linear figures.

Linearized picto-graphs of the Reindeer Period.

Thus the process by which the characters of the alphabet were ultimately formed goes back, as it were, to another World. It is possible even that some of these simple ideographic symbols acquired a wide primitive currency independent of language—

[1] See p. 4, Fig. 3.

much as many gesture signs are intelligible amongst American Indian tribes belonging to the most heterogeneous groups.

In examining this primitive material, however, such as is presented by the linear signs on the pottery of Hissarlik, the Aegean area, or of prehistoric Egypt, we are confronted by an initial difficulty. In addition to these truly ideographic linear signs, we have to deal with purely arbitrary forms which have their origin in individual caprice. Such are many owners' marks and other simple geometrical combinations.

Linear signs of arbitrary origin.

Good examples of these from the Aegean area are supplied by a series of marks on the pottery from the Early Settlement of Phylakopi. These, as will be seen from Table IX, Fig. 46,[1] are formed by simple conjunctions of lines, varied at will, and not to be confounded with the characters drawn from a recognized script that occur on some of the Melian vessels.[2]

Examples from Phylakopi.

But, as already observed, side by side with these simple marks, due to individual initiative and caprice, are others, often hardly distinguishable from them in point of form, which, like the archaic linear figures of the Reindeer Period already referred to, either represent simple pictographs in the rude 'slate pencil' style belonging to the infancy of Art, or result from the degradation of fuller pictorial forms. Under new conditions of life, moreover, their numbers would be perpetually recruited through the simplification of pictographic figures of later vogue.

Linearized pictographs.

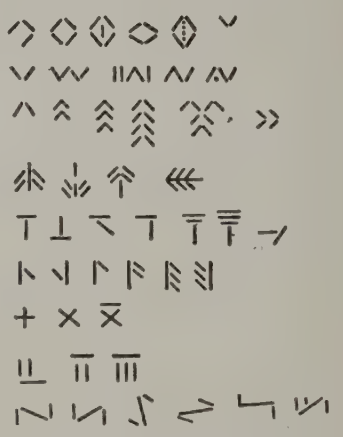


Fig. 46 (Table IX). Personal Marks on Pots, Phylakopi.

That such linearized signs, rooted in a very ancient pictography, should often have retained a phonetic value as word-signs through all the modifications in their form seems to stand to reason. The detrition due to age-long use, moreover, would in the case of such figures have smoothed away any original asperities of outline and fitted them for general currency.

Alphabetiform signs of great antiquity.

Here, then, we have ready to hand a body of signs in form almost purely alphabetic, and possessing an ideographic tradition. What more, it may be asked, where such conditions held, was needed to call into existence a fully developed system of writing?

In some important respects, however, this primordial body of linear signs and marks was not susceptible of such easy adaptation to the purposes of script. The currency of many of these signs was probably far from general. Their simplicity was such that they often could not be distinguished from owners' marks of purely arbitrary origin and possessing nothing beyond an individual significance.

These primitive linear signs, nevertheless, insufficient to generate a system of script.

Moreover, the particular value of such primitive linear signs must have constantly

[1] *Excavations at Phylakopi*, p. 182, Fig. 152. (Reproduced by the kind permission of the Committee of the British School of Athens.) For the Melian signs see my remarks, op. cit., pp. 181–5.

[2] See above, p. 35.

differed in various localities or families. That in the case of simple linear signs there could be no security for identity of meaning is sufficiently obvious. There are fixed points in the evolution of certain plain geometrical combinations which may be reached in various ways. Thus the *svastika* or *crux gammata* is known to have been arrived at by several different stages. At times it originates from the addition of terminal spokes, indicative of revolution, to the cruciform star-sign common among primitive peoples. Sometimes it arises from the angularization, due to textile requirements, of a pictorial figure, such as a flying bird. Or, again, the same transforming medium produces it through the break up of a continuous plait-work pattern. On early Greek coins it arises from the angles of a quadruple stamp. But it is clear that a sign which might be evolved by several alternative processes could not always have borne the same signification.

Their sporadic currency and variant derivation.

It will be seen that any off-hand adaptation of these heterogeneous elements—alphabetiform though many of them appear—for the purposes of an advanced script was out of the question. As a matter of fact, the fully equipped systems of writing, from Egypt and Babylonia to China and Mexico, came into being in a very different way. The process of evolution was much more laborious, and in all cases stopped short of the alphabetic goal.

Advanced scripts evolved out of conventionalized pictography.

The development of an advanced system of writing needs itself an advanced stage of civilization. A savage race, accustomed, it may be, to barter hides or furs for other rude commodities, has no use for a currency of coined money. A rough and ready picture-writing is all that is needed by a primitive society. When, with the Egyptians and other ancient races, the demand at last came for a more elaborate system of writing it was almost wholly supplied by the adaptation of existing pictographic figures.

The old linear signs were insufficient for graphic requirements. They were too vague, too imperfectly generalized, too discordant in their signification. For clearness' sake it was still necessary to adhere to pictographic methods. There was, moreover, in Pharaonic Egypt, among the royal and priestly caste who had its records in their charge, a desire for calligraphic effect and architectonic embellishment which inclined to the pictorial as against the linear ideal. The traditional pictographs drawn in the 'slate pencil' style of the childhood of Art now assumed a more stately aspect, and the details of the objects represented were rendered with greater accuracy. From the alphabetic point of view, this process was often distinctly retrograde, though the simpler method reasserted itself in the hieratic and demotic scripts.

It was necessary thus for a new body of simplified signs to be generated from the hieroglyphic figures before the elements of an advanced linear script could at last be reached.

Derivation of new family of linear signs from hieroglyphic in Egypt.

The facility with which a fresh supply of linear forms could be drawn from this living source of conventionalized pictography receives indeed an interesting illustration from the remains of the earliest dynastic period in Egypt. In the First

Dynasty tombs of Abydos there were found, together with a series of monuments presenting hieroglyphs of a very archaic type, numerous vases of clay and stone with incised signs often of the simplest linear and alphabetiform character. But a

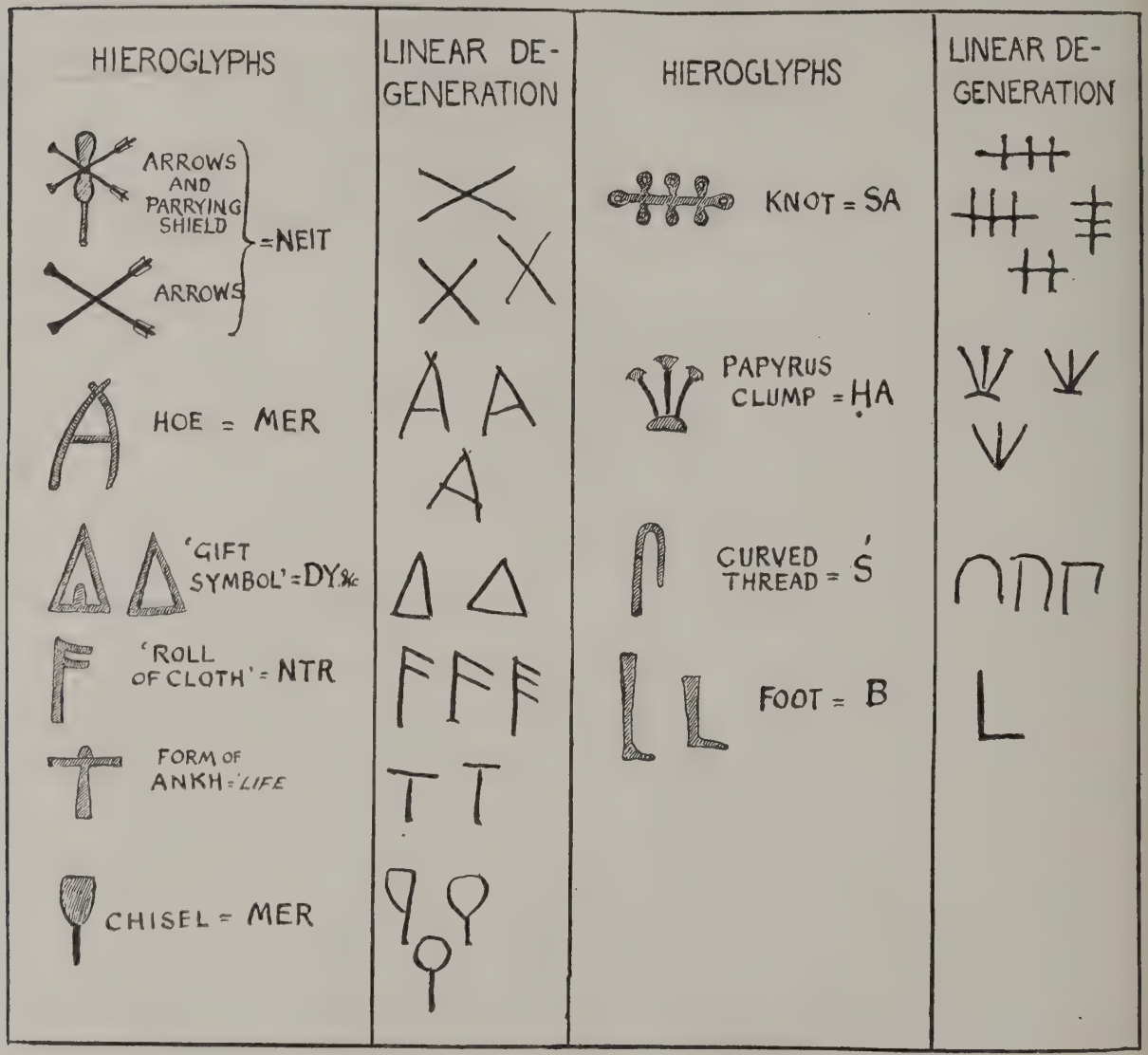


Fig. 47 (Table X). Hieroglyphic and Linear Degenerations.

careful investigation of the origin of these linear signs, as illustrated by fuller intermediate types and by the relations in which they stand in groups, shows that in almost all cases they are merely the degenerate derivatives of hieroglyphic originals. They belong, in fact, to the conventional Egyptian series, and cannot be

treated as if they were simply surviving elements of some linear signary of remote antiquity.

In the above Table we see a series of purely alphabetic forms closely resembling the Greek and Latin characters X, A, Δ, F, T, ϙ, Ξ, Ψ, Π, and L, standing for pictographic originals of known meaning. It seems probable that in these cases we have to do with a process of degeneration and simplification of normal hieroglyphic forms rather than with the survival of their linear prototypes.

These linear signs occasionally nearer more primitive pictographic types.

At the same time there are cases in which these linear graffiti unquestionably stand nearer to the more primitive types than to the conventional hieroglyphs. Thus, together with a series of rude derivatives of the Egyptian *Ka* sign, consisting of two hands raised as in adoration, we find linear sketches of the earlier and fuller form of this in which the whole human figure is given as well as the arms. The Ψ sign again, which is found in the same First Dynasty series, seems to be a simplification of a linear rendering of a palm-tree, frequently recurring among the prehistoric pot-marks, as in Nagada, but which is absent from the hieroglyphic system.

Survival of earlier class of linear signs in Egypt.

It is certain that in Egypt, besides such more recent simplifications of hieroglyphic characters, a body of linear signs of very ancient derivation survived into the Dynastic period. These traditional figures were no doubt largely used as personal marks, and it is as such that we must regard many of the incised characters on the pottery, such as the Twelfth Dynasty vessels of Kahun. From this source, too, probably sprang certain groups of signs made use of by Egyptian artificers, notably goldsmiths and inlayers, which were employed in the arrangement of different pieces of work, such as the beads of a necklace or faience plaques for inlaying. It will be shown in another part of this work that, together with the arts themselves, certain 'craftsman's signs' of Egyptian origin seem to have obtained a currency in Minoan Crete. This use of linear signs as a means of classifying and arranging manufactured objects is paralleled by the sets of potters' marks like those of Melos, as well as by the marks incised on the blocks of the Minoan buildings. The consideration of such 'craftsman's signs' is, however, so intimately bound up with the advanced linear scripts of Crete that it can only be adequately treated in the volume devoted to that part of the subject.[1]

'Craftsman's signs' in Egypt and Crete.

Primitive linear signs in Crete.

Rude linear pictographs and signs go back in Crete, as in other parts of the Aegean area, to a very remote period. When they occur on pottery, indeed, they may often be personal marks, or, as on a primitive sherd from the Cave of Miamu with two E-like figures,[2] they may owe their origin to the simplification of some decorative motive. But many of the linearized pictographic characters that are found incised on a variety of small objects may be reasonably supposed to have had an ideographic value.

On rude pendants, bead-seals, and whorls.

These, it will be seen, often occur on rudely-shaped pendants, bead-seals, and whorls of steatite of a very primitive character. Conspicuous among these are certain

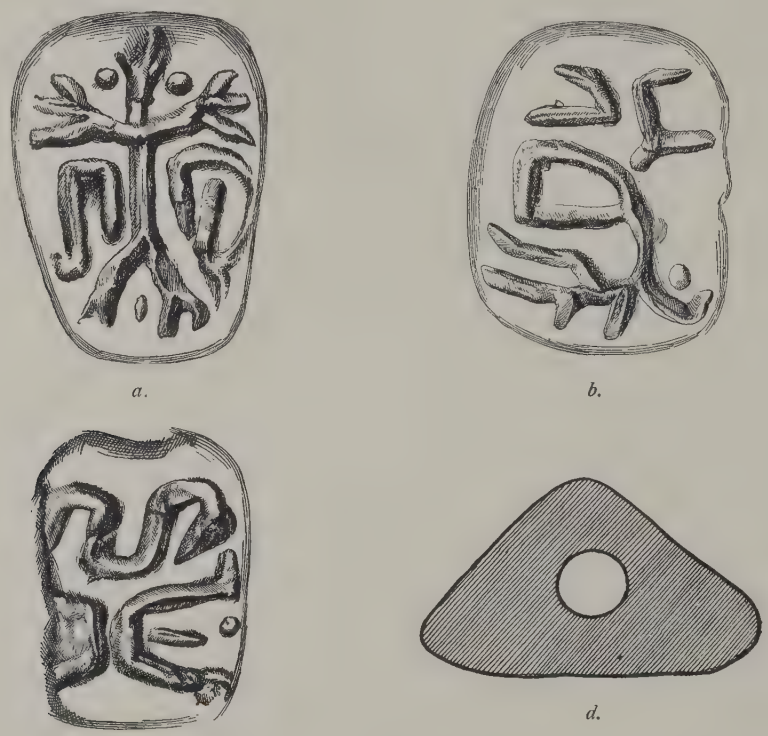
[1] Vol. II.

[2] A. Taramelli, 'The Prehistoric Grotto at Miamu,' *Journ. Arch. Inst. of America*, 1897, p. 304, Fig. 16, and *Mon. Antichi*, ix (1899), p. 163, Fig. 63.

irregularly-shaped three-sided bead-seals, which have a special typological importance as the prototypes of the three-sided prism-seals, which, at a later period, are so often engraved with sign-groups in the Cretan hieroglyphic script.

Material for seals, &c., supplied by soapstone or steatite beds existing in Crete.

The material on which these primitive designs are usually cut is the soft steatite or 'soapstone' which occurs abundantly in some of the Cretan valleys.[1] The shape is often quite irregular—mere splinters or slices of stone, perforated so as to be used as pendants, roughly rounded whorls, or rude button-like seals. The mere bored splinter seems to develop into the earliest type of three-sided bead-seal, such as is



a. *b.* *c.* *d.*

Fig. 48. Rude Three-sided Seal of Steatite from Kalokhorio. [$\frac{2}{1}$.] (*a*, *b*, *c*, sides; *d*, section.)

seen in Fig. 48, a type destined, as already observed, to become the progenitor of a long race of Cretan signets. The seal itself, from Kalokhorio[2] in East Central Crete, shows on one side (*a*) a rude figure of a man with outstretched arms. That in the lower field (*b*) is apparently an animal. As to the character, however, of the other elements of the engraving which fill the remaining face and the vacant places of sides (*a*) and (*b*), it is impossible to say more than that some of them look like an anticipation of alphabetic forms.

[1] See *Further Discoveries*, &c., p. 328.

[2] *Further Discoveries*, &c., pp. 328–30 and Fig. 1. It was obtained by the Italian archaeologist, Dr. Antonio Taramelli, and is now in the Museum at Candia. Taramelli, *Ricerche archeologiche cretesi*, pp. 154, 155 (*Mon. Antichi*, ix. 1899).

An irregularly shaped pendant of green steatite, from Arvi[1] (Fig. 49; Pl. I, P.L. 5), shows on either side linear signs, one of which may be taken to represent the rude outline of an ox's head. Another unevenly shaped bead-seal of

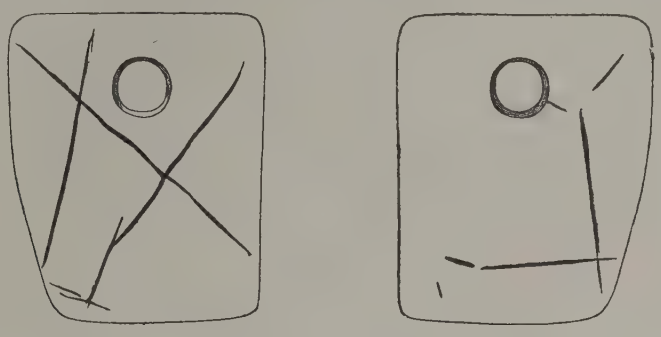


Fig. 49. Steatite Pendant, Arvi. (2 diams.)

yellowish steatite, recently found in Central or Eastern Crete[2] (Pl. I, P.L. 2), is engraved below with what appear to be a series of signs connected together in a rude monogrammatic fashion, and in this respect recalling the characters on a very early block from the Palace site at Knossos.

A rude human figure somewhat resembling that of Fig. 48 *a*, accompanied with other linear signs, is seen on a clay cylinder (Fig. 50, and Pl. I). This type of cylinder, with engraving at the top and bottom and a perforation by the side, differs entirely from the Babylonian and Early Egyptian forms. It has now been shown, by the discovery of other examples in the tholos ossuaries of Crete, to belong to the Early Minoan Age. The principal figure on the base of this cylinder is a cross or imperfectly formed *svastika*.

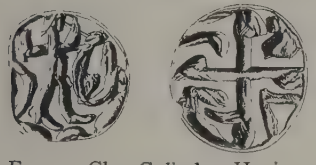


Fig. 50. Clay Cylinder, Hagios Onuphrios.

The deposit of Hagios Onuphrios near Phaestos[3], from which this cylinder was obtained, must now itself be taken to represent the débris of an Early Minoan ossuary like those of Hagia Triada and Kumasa. A button-like pendant of steatite

Deposit of Hagios Onuphrios.

[1] See also *Cretan Pictographs*, &c., p. [286] 17, Fig. 16.

[2] See Xanthudides, Κρητικαὶ σφραγίδες (Ἀρχ. Ἐφ. 1907, Pl. VI, 18, p. 157).

[3] In my first work on *Cretan Pictographs* (pp. 56 [325] seqq.) and the Appendix to the same (Quaritch, 1895, pp. 105–38) I had laid stress on the evidences of Twelfth Dynasty influences on some of the objects. There can be no doubt, however, in view of the contents of the recently found ossuaries and our better knowledge of the Early Minoan Periods, that it must in the main be referred to an earlier time. Some elements of this deposit, as, for instance, a round-bottomed, prominent spouted vase showing a primitive geometrical pattern, belong to the Second Early Minoan Period. The single polychrome vessel found (p. 115, Fig. 108) belongs to the very beginning of the Middle Minoan Age. Many of the seal types, like the clay cylinder described above, the perforated cones of steatite and ivory, and an oval seal of steatite with a ridged back (p. 106, Fig. 79), are quite characteristic of the early ossuaries of Hagia Triada and Kumasa. (See below, pp. 119 seqq.) An Eleventh or Twelfth Dynasty element may, indeed, be detected in an amethyst scarab engraved with three circles by an indigenous hand (op. cit., p. 47 [326]) and possibly by a motive on a button-seal (p. 58 [327], Fig. 49 *h*). But at most the limits of the Middle Empire (and of the Middle Minoan Age in Crete) are here touched.

from the same deposit[1] (Fig. 51; Pl. I, P.L. 4) exhibits two linear signs, the first of which closely corresponds with a character of the linear script A. Still more important is the steatite whorl (Fig. 52; Pl. I, P.L. 3 *a* and *b*), which also belongs to the Hagios Onuphrios find.

Whorl engraved with linear signs from Hagios Onuphrios.

On one side of this whorl (*a*) the principal design appears to be a rude human figure with an ox's head, in other words, a kind of Minotaur, accompanied by a single sign like a V, with a square handle. On the other side we see what seems to be the ox-head apart from the body, followed by the same sign, and that, in turn, by four other characters of such extraordinary alphabetic appearance that they might be transliterated H C I N. Of these the first and second appear on the later

Fig. 51. Button-shaped Pendant, Hagios Onuphrios. (2 diams.)

a.

b.

Fig. 52. Engraved Whorl from Hagios Onuphrios. (2 diams.)

linear scripts of Minoan Crete; I is a common mark of division on them, and the fourth character is found among the geometrical types of the conventionalized pictographic signary. From the very early date of this whorl, which in all probability lies beyond the extreme limit of the Palace Period in Crete, and precedes the time when the developed hieroglyphic script was in vogue, it does not seem likely that we have to deal here with characters having an abbreviated phonetic value. That the ox-head and other linear signs on the whorl had an ideographic meaning is extremely probable, and we have at any rate an example of a collocation of primitive signs of alphabetic aspect which stand in a near relation to the more advanced linear scripts of Minoan Crete.

II. § 2. PROTODYNASTIC EGYPTIAN AND EGYPTO-LIBYAN INFLUENCES ON CRETAN SEAL-STONES

Pictorial development on seals.

The tendency of the art of seal engraving as it advanced in technique was to produce more pictorial and decorative figures than those that appear on the class of seal-stones with primitive linear signs. Of this pictorial development, with its broader and fuller intaglio, more will be said in considering the rise of the 'hieroglyphic', or, as it is here termed, 'conventionalized pictographic' class of script described in the succeeding Section.

The 'primitive pictographic' class.

The types of seal which in Crete immediately precede and partly overlap those with the stereotyped 'hieroglyphic' characters may here be conveniently referred to

[1] *Cretan Pictographs*, &c., p. 16 [285], Fig. 12.

as of the 'primitive pictographic' class. In this class must also be included many more or less contemporary seals of shapes similar to those showing pictorial ideographs, but the designs upon which are of a purely decorative character.

Seals from the early Cretan ossuary tholi.

A much fuller knowledge of the earlier classes of Cretan seals, supplementing that derived from the earlier find at Hagios Onuphrios,[1] has now been obtained by the discovery by the Italian Mission at Hagia Triada, near Phaestos, and by the Ephor Dr. Stephanos Xanthudides at Kumasa, on the Messara plain, of a series of primitive ossuaries of domed or 'tholos' shape. The periods covered by these may be stated in terms of Cretan archaeology as the Second and Third 'Early Minoan' and the beginning of the 'Middle Minoan' Age. The pottery associated with them is generally of a primitive character. Some of the pots are made for suspension, and the *pyxis* form, so characteristic of the early metal age graves of the Cyclades, is represented both in earthenware and steatite. Vases with prominent beaks preponderate, and the most advanced types show only incipient traces of polychromy. Among the early elements are copper dagger-blades of the simple triangular form.

Characteristic contents of early Minoan ossuaries.

The primitive 'idols' or human figures found in these tholos ossuaries are specially noteworthy. Many of the figures associated with the later remains of this class are identical with the Early Cycladic marble types, and must in most cases have been imported from the North Aegean. But in the tholos of Hagia Triada,[2] which represents an early phase of this culture, there occurred some very interesting indigenous types, of steatite and other materials, which almost exactly reproduce the characteristic features of certain early figures found at Nagada and other prehistoric Egyptian sites. We have here repeated 'the domed head and pointed chin' of the prehistoric[3] and protodynastic inhabitants of the Nile Valley, and the manner in which the bodies of several of their images are rendered, without indication of arms or legs and tapering to a point below, is also illustrated in the prehistoric Egyptian tombs.

'Idols' of Proto-Egyptian type.

The Nilotic connexion evidenced by these figures, as well as by certain seals to be referred to below, receives a further corroboration, which has hitherto escaped notice, from the occurrence with the human remains of the Early Cretan ossuaries of numerous perforated objects of steatite in the form of human legs and feet.[4] But precisely similar pendants, in that case mostly of cornelian, characterize Egyptian interments like those of Mahâsna, north of Abydos, belonging to the Sixth Dynasty and the immediately succeeding period, and associated with types of 'button-seals' which, as we shall see, formed the immediate prototypes of Cretan examples that also occurred in the early tholos.[5] These Egyptian or Egypto-Libyan pendants were 'invariably attached to the ankles', and, like others in the shape of forearms attached to the wrists, evidently served the purpose of amulets or talismans, to give strength to the limbs in question. They were doubtless applied in the same

'Leg' amulets like those of Sixth Dynasty.

[1] See above, p. 117, note 3.

[2] Halbherr, 'Scavi eseguiti dalla Missione Archeologica Italiana ad Haghia Triada ed a Festo,' *Memorie del r. Istituto Lombardo*, vol. xxi (1904), p. 251.

[3] Petrie, *Man*, 1902, p. 17, and cf. Halbherr, loc. cit.

[4] J. Garstang, *Mahâsna*, Pl. XXXIX and p. 30.

[5] See below, pp. 127, 128.

way by the people with whose remains the great ossuary chamber of Hagia Triada was filled, and we have here, therefore, the evidence of a correspondence in religious ideas as well as in personal ornament.

Monkey pendant and ivories.

It is also noteworthy, as additional evidence of relations with the African side of the Libyan Sea, that one of the pendants represents a monkey and that a large number of the seals are of ivory. It is possible that seals of this material were more abundant on the southern side of the island, owing to the greater facilities of transmarine communication.

Hagios Onuphrios remains belong to same group.

The recently acquired evidence makes it clear, as already noted, that the early deposit of Hagios Onuphrios, near Phaestos, described by me in 1895,[1] was in reality derived from the remains of one of these primitive 'tholos' ossuaries.[2] The general *facies* of the relics found was similar, and it is obvious that, as in the other cases, the interments from which they were derived ranged over a considerable period

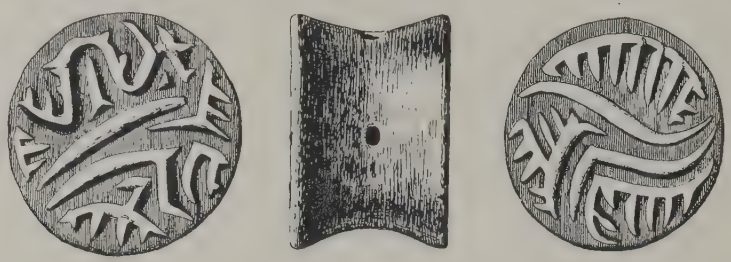


Fig. 53. Cylinder with Lateral Perforations, Ossuary Tholos of Hagia Triada.

of time. Here, too, we see Cycladic marble idols, a primitive subtriangular dagger, a suspension vase like those from the lowest strata of Hissarlik, and early seal types of soft stone and ivory.[3]

Seal types of early ossuaries.

Among the types of seal represented by the contents of these early ossuaries and by some other contemporary finds are perforated cones, conoids (see below, Figs. 62, 63), and truncated pyramids; cylinders with an engraved design at their base and a small handle at top;[4] cylinders (like Fig. 50 above) with a lateral perforation and engraved on their upper and lower surface (Fig. 53) ; half-cylinders with designs both on their flat and convex sides; rings of steatite and ivory with a large round besil; pear-shaped signets (Fig. 54)—often resembling water-carafes in outline—with a perforated knob above,[5] and 'button-seals'. About the close of the period represented by the bulk of the finds there also appears the class of three-sided bead-seals, of dumpy shape, perforated along the major axis. This compact variety of 'prism-

First appearance of prism-seals.

[1] Supplement to *Cretan Pictographs*, &c. (Quaritch, 1895), pp. 105 seqq.

[2] See above, p. 117, note 3.

[3] It is also interesting to notice that a series of primitive seals of soft stone, consisting of perforated conoids and other types characteristic of the early Cretan ossuaries, were discovered some years since at Elaphonisi off the coast of the Morea (near Monemvasia). They are in the Ashmolean Museum at Oxford. They present groups of pellets or globules.

[4] Halbherr, *Memorie del r. Istituto Lombardo*, xxi (1904), Figs. 25, 26. This example is from the Tholos Ossuary of Hagia Triada.

[5] The example figured is from Central Crete. It was acquired at Candia and is in my own collection.

seal' is the immediate predecessor of a more elongated form which occasionally bears three 'hieroglyphic' inscriptions. The pear or carafe-shaped type, again, is the direct forerunner of a more elegant class of signets which, like the elongated prism, is in a special way associated with the hieroglyphic characters. The material used for the seals of the early deposits is almost exclusively soft stone or ivory, but the pear-shaped type of signet was occasionally cut out of rock crystal.[1]

Egypto-Libyan connexions

The commercial intercourse existing during this early period between Crete and the southern shores of the Libyan Sea, as attested by the abundance of ivory objects, and the still more intimate relationship brought out by the Hagia Triada images and amulets, leads us to a very interesting aspect of the present inquiry. A comparison of certain early Cretan seals, and of a series of figures and decorative designs presented by them, with a special Nilotic class of seals and seal-types, will be found to add many new links to this chain of connexion. The parallelism thus established is indeed of the highest importance, not only in its bearing on the origins of Minoan culture, but as affording some approximate guide to the chronological place of the Cretan seals of the primitive pictographic class. And inasmuch as these pictographic seal-types are the immediate predecessors of the more conventionalized class exhibiting the hieroglyphic script, we have here at the same time a *terminus a quo* for dating the period during which this conventionalized pictorial script arose in the island.

Fig. 54. Pear-shaped Signet of Black Steatite: Early Minoan, Central, Crete. [⅔.]

supply a chronological *terminus a quo.*

Egyptian cylinder seals.

The earliest type of seal in Egypt appears to have been the cylinder, also common to Babylonia. The cylinder was indeed the prevailing form till the early part of the Twelfth Dynasty, when it began to be superseded by the scarab. The frequent appearance of the standard of Neith, the Libyan Goddess, on a class of cylinders that was in vogue before the First Dynasty, must be taken to connect them with the Western Delta.[2] On the other hand, the close parallelism existing between the early types of Egyptian cylinder and the primitive Chaldaean tends to show that this form of seal had first made its way into the Lower Nile Valley from the Asiatic side. This association of the cylinder type in Egypt with the primitive population of the Delta helps us to assign a source to a special class of these[3] which stands apart from the ordinary series with hieroglyphic inscriptions, and seems to represent a survival throughout the early dynastic period of some indigenous element.

Connexion with the Delta.

[1] One such specimen was found in the Hagia Triada ossuary. Another was seen by me in Candia.

[2] See Percy Newberry, *Scarabs, an Introduction to the Study of Egyptian Seals and Signet Rings*: London, Constable, 1906, p. 51. Mr. Newberry lays stress on the part played by the Delta population in the introduction of the cylinder type into Egypt.

[3] See my *Further Discoveries*, &c., pp. 364 seqq.

Class of cylinders presenting non-Egyptian elements.

The characters on this class of cylinders, though they contain many signs common to the hieroglyphic series, exhibit certain extraneous elements, and must be regarded as the work of men who had not accepted the conventional Pharaonic standard. Certain features on these point to Babylonian influence, such as the recurrence of

Fig. 55. Cylinder of Black Steatite, Petrie Collection.

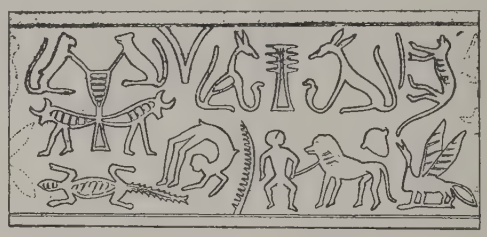


Fig. 56. Cylinder from Lajard (*Culte de Mithra*).

a grotesque pygmy form—recalling the embryonic Ptah-Sokar-Osiris—which also occupies a secondary position on Chaldaean cylinders of very archaic fabric.[1] As I remarked in first calling attention to this group of cylinders in 1895,[2] 'we see evidence of borrowing both from Asiatic and dynastic Egyptian sources—the latter naturally preponderating—while at the same time both classes of borrowed elements are reproduced with a certain barbaric fantasy and are combined with other features which are neither Pharaonic nor Chaldaean.' Some of these features, like the occurrence of compound animal figures with double heads and fore-quarters, are direct survivals from the art of pre-historic Egypt, resembling as they do the double ibexes and bulls of the ivory combs and slate palettes. To this Deltan form of culture the term Egypto-Libyan may perhaps be provisionally applied. The old indigenous element indeed seems at various points to have maintained a more or less independent existence on the borders of civilized Egypt, and from time to time intruded itself within its borders.

'Egypto-Libyan' character.

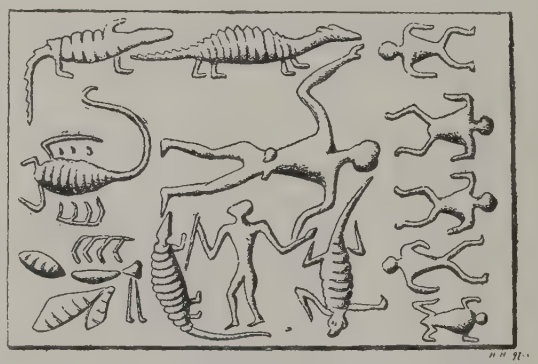


Fig. 57. Clay Cylinder in Gizeh Museum. After De Morgan.

Cylinders from Egypt.

Characteristic examples of this class of cylinder are reproduced from my earlier work in Figs. 55, 56, 57. The shape of the cylinders themselves, which are cut out of black steatite, is larger and more elongated than the pre-dynastic forms, and shows a much wider perforation. In these respects they answer to the cylinder types in vogue from the Fourth to the Sixth Dynasty.

[1] *Further Discoveries*, &c., p. 366, n. 1.

[2] Op. cit., p. 366.

But this class of cylinders leads us to another evidently contemporary form of 'Egypto-Libyan' seal-stone, which has a very near relation to that prevalent in Crete about the close of the Early Minoan period. A specimen of the type in question, obtained by the late Mr. Greville Gunter, and said to have been found at Karnak,[1] is given in Fig. 58. It is three-sided, or 'prism'-shaped, with a very large perforation along its major axis, and, like the cylinders referred to, is formed of black steatite. It might, indeed, be roughly described as a 'cylinder' with three sides. It will be seen that the figures on this prism belong to the same category as those of the less conventional class of protodynastic cylinders. Some of these, like the bee, the crocodile, and the scorpion, correspond with hieroglyphic types, but the double-headed goat and the horned Minotaur-like figure are certainly abnormal. When we recall the appearance on the parallel group of cylinders of a pygmy form borrowed from the primitive Chaldaean cycle, there

Egyptian prism seal.

a *b* *c* *d*

Fig. 58. Prism-seal of Black Steatite from Karnak. [⅔] (*a*, section; *b*, *c*, *d*, sides.)

seems to be some warrant for supposing that the horned man of the prism may be due to a 'composite and distant reminiscence of Gilgames and Eabani'.[2] Moreover, the male figure of the present group, sometimes seen, as on the prism, holding up a crocodile by the tail, sometimes, as on the cylinder given in Fig. 57, in a combatant attitude between two crocodiles, recalls, under changed local conditions, the favourite Babylonian scheme of the hero grappling with lions and wild bulls.

The prism type of seal is quite isolated in Egypt, and the fact that in Crete—at a somewhat later period, it is true—the three-sided form of bead-seal is the most usual, suggests that its appearance in the Nile Valley may be due to influences from the Aegean side. So much at least is evident, that the 'Egypto-Libyan' element, to which both the Karnak prism and the allied group of cylinders were due, had intimate points of contact with the Early Minoan culture. In the comparative Table XI (Fig. 59), here reproduced,[3] some striking parallels are adduced between certain characteristic figures of this 'Egypto-Libyan' class and

Egypto-Libyan parallels on Minoan seals.

[1] See *Further Discoveries*, &c., pp. 362 seqq.

[2] Op. cit., &c., p. 366.

[3] From op. cit., &c., p. 369, Table II.

those on Cretan seals of various periods. Among these we have seen that the animal forms composed of two united fore-quarters are a prehistoric Egyptian tradition. The Minotaur-like figure, on the other hand, as already noted, is best explained by the Asiatic influences which never ceased to operate on the Delta population. A horned human figure, it may be remembered, appears on the primitive whorl described above (Fig. 52) from the Hagios Onuphrios deposit, and the 'Minotaur' proper becomes frequent on Cretan seal-stones from the beginning of the Late Minoan period onwards. It is possible that these later types drew for

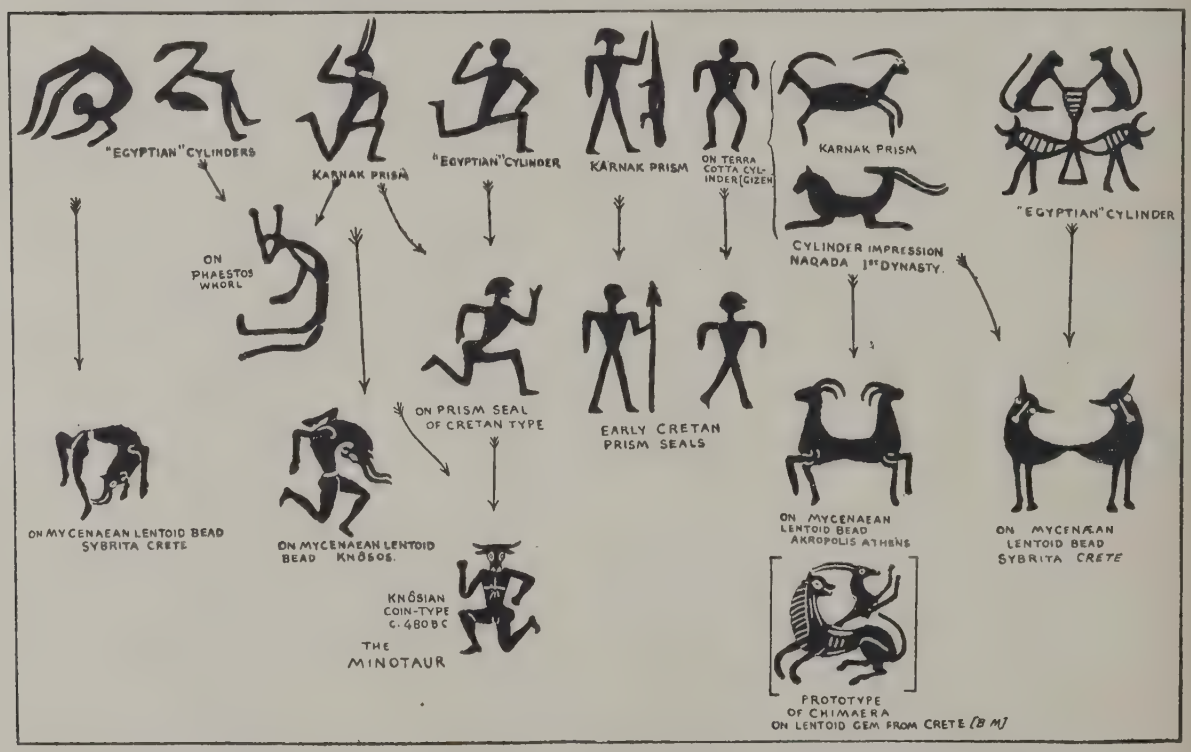

"EGYPTIAN" CYLINDERS
KARNAK PRISM
"EGYPTIAN" CYLINDER
KARNAK PRISM
ON TERRA COTTA CYLINDER (GIZEH)
KARNAK PRISM
"EGYPTIAN" CYLINDER
ON PHAESTOS WHORL
CYLINDER IMPRESSION NAQADA 1st DYNASTY.
ON PRISM SEAL OF CRETAN TYPE
EARLY CRETAN PRISM SEALS
ON MYCENAEAN LENTOID BEAD SYBRITA CRETE
ON MYCENAEAN LENTOID BEAD KNŌSOS.
ON MYCENAEAN LENTOID BEAD AKROPOLIS ATHENS
ON MYCENÆAN LENTOID BEAD SYBRITA CRETE
KNŌSIAN COIN-TYPE c. 480 B.C.
THE MINOTAUR
PROTOTYPE OF CHIMAERA ON LENTOID GEM FROM CRETE (B.M.)

FIG. 59 (TABLE XI). Human and Animal Types on 'Egypto-Libyan' Cylinders and Prism compared with Minoan Forms.

their immediate inspiration from some less ancient source, but the indications supplied by the prism and the whorl tend to show that it was through 'Egypto-Libyan' intermediaries that the type of the man-bull first reached the Isle of Minos.

Chronological data.

The class of cylinders above referred to, and doubtless also the 'Egypto-Libyan' prism-seal, may be taken to belong to the period that is comprised between the beginning of the Fourth and the early part of the Sixth Egyptian Dynasty. According to the new chronology based on the Sothic cycle[1] this would be from 2840 to about 2500 B. C., while the system of Lepsius would carry back the beginning of this period to the close of the Fourth Millennium before our era. The period

[1] E. Meyer, *Aegyptische Chronologie*, p. 178.

marked by this Nilotic influence on Cretan culture—of which there are other evidences in the shape of imported stone vases—is in any case sufficiently remote.

During the succeeding Age, from the beginning, that is, of the Sixth Dynasty to the advent of the Eleventh Dynasty and the establishment of the Middle Empire, the evidences supplied by Cretan remains of sphragistic influences from the same side continue to accumulate.

Sixth Dynasty 'button-seals'.

About the time of the Sixth Dynasty—2540–2360 B. C., according to Meyer's system—seals in the form of stamps begin to make their appearance in Egypt,[1] beside the earlier cylinder types, and among these the class of 'button-seals'.[2] Mr. Newberry remarks on these,[3] 'The patterns that we find engraved on button-seals are distinctive and are certainly not Upper Egyptian in their origin. Hieroglyphs very rarely occur,

Fig. 60. Egypto-Libyan 'Button-seal' (Newberry, *Scarabs*, p. 56, Fig. 33). $\frac{2}{1}$.

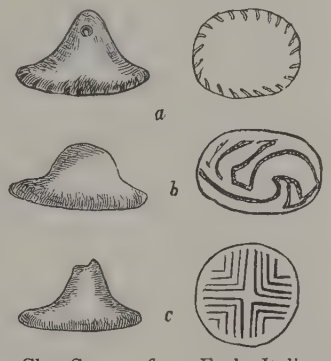


Fig. 61. Clay Stamps from Early Italian Deposits (reduced to about $\frac{1}{2}$ linear). *a.* Pollera Cave, Finale, Liguria (in the Morelli Collection at Genoa). *b.* Caverna del Sanguineto, Finale, Liguria. (Cf. A. Issel, *Note paletnologiche sulla collezione del Sig. G. B. Rossi*, Tav. II. 5, 6.) *c.* Terramara of Montale (in the Parma Museum).

and when they do they are clearly imitations of Egyptian characters, made apparently by foreigners.' That they are the work of the same 'Egypto-Libyan' population who produced the class of cylinders and prism-seals above referred to, is evident from the recurrence on them of figures derived from the same cycle. Thus we see animals—gazelles and others—with linked fore-quarters (Fig. 60),[4] the same running human figure,[5] and a spider type[6] identical with that of face *a* of the Karnak prism. On the other hand this button-like type of seal has itself a wide Mediterranean range, and finds its analogy not only in Cretan forms but in the primitive clay stamps found in early Italian deposits (Fig. 61),[7] such as the Terremare and the Ligurian Caves. In Fig. 61 *b*, from the Caverna del Sanguineto near Finale, we may actually trace a vague reminiscence of the characteristic 'double sickle' motive to be referred to below.

Cretan and early Italian analogies.

In some of the decorative designs presented by the Egyptian 'button-seals', such as

[1] Newberry, *Scarabs*, &c., pp. 57, 58.
[2] Op. cit., pp. 56 seqq.
[3] Op. cit., p. 58.
[4] Op. cit., Fig. 33, p. 56.
[5] Op. cit., Fig. 42, p. 59.
[6] Op. cit., Fig. 44, p. 59.
[7] In *Cretan Pictographs*, &c., p 67 [336], I had already called attention to the parallels presented by these Egypto-Libyan 'button-seals' to the clay stamps of the Ligurian Caves and of the Terremare.

The maeander and spiral.

the constantly recurring maeander or key pattern, we may with great probability detect Aegean influences such as those which, at a somewhat later date, introduced the spiraliform patterns on to Egyptian cylinders, as well as on to a series of scarab types which first came into vogue about the beginning of the Middle Empire. Both phenomena indeed may be regarded as due to successive waves from the same Northern source. There can be no longer any reasonable doubt that a spiraliform system was rife at a very early period in the lands on the European side of the Aegean. This seems to have been already highly developed in a great Neolithic Province extending from Thessaly[1] and Bosnia[2] to the lands to the North of the Euxine.[3] In the earliest metal age deposits of the Cyclades, in Amorgos, Paros, Syros, and elsewhere we find a parallel system already deeply rooted. In Crete it also makes its appearance in the Early Minoan Age on steatite *pyxides*, rings, and other objects of Cycladic form. But its occurrence there is still sporadic, and there are signs that it did not fully domesticate

North Aegean origin of spiral.

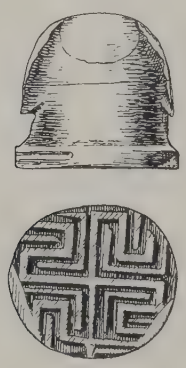


Fig. 62. Ivory Conoid from Ossuary Tholos, Hagia Triada.

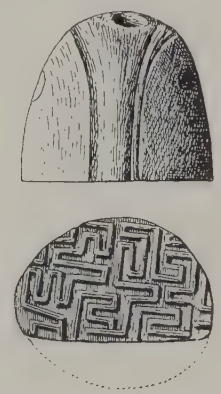


Fig. 63. Ivory Conoid from Ossuary Tholos of Hagia Triada.

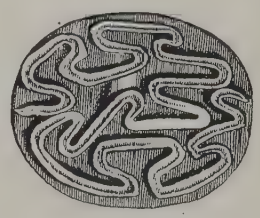


Fig. 64. Ivory Conoid from Ossuary Tholos of Hagia Triada.

itself in the island till the Middle Minoan Age, when indeed it supplies the leading motive of some of the most brilliant designs of the wall decoration and of the vases of the polychrome style. Thus, although the spiraliform patterns appear among the relics found in the early Cretan ossuaries—as, for instance, on the besils of certain steatite and ivory rings—they are by no means dominant, as in the contemporary interments of the more Northern islands.

Translation of spirals into maeanders.

It seems, however, that we may trace the influence of the incoming fashion in another way. The suggestion supplied by the returning spirals of the new decorative system is harmonized here with dominant habit of rectilinear design, and, as has so often happened in the history of spiraliform ornament, it is angularized and translated into

[1] The Neolithic painted pottery from the Thessalian stations of Sesklo and Dimini has now been published by Dr. Tsountas, Αἱ προϊστορικαὶ ἀκροπόλεις Διμηνίου καὶ Σέσκλου. Thanks to the courtesy of the explorers, I had been able previously to examine the material.

[2] Notably the Neolithic Station of Butmir (W. Radimsky, *Die neolithische Station von Butmir* (I), fortgesetzt von F. Fiala und M. Hoernes (II).

[3] E. von Stern, *Die prämykenische Kultur in Süd-Russland* (Moscow, 1906), where a good deal of the material relating to Southern Russia, Poland, and the Danubian Provinces is summarized.

keys and maeanders, the prototypes of the labyrinth in art. Such maeander patterns are the prevalent decorative motives of a whole series of seals of various types found in the Early Cretan ossuaries (Figs. 62–64).[1] Their genesis explains itself, and they are thoroughly at home to the island.

On comparing the elaborate maeanders on these Cretan seals with the more imperfect and less fully represented versions of similar patterns on the Egyptian button-seals, it certainly looks as if the original suggestion came in this case from the Cretan side. But on the other hand there is clear evidence that certain designs which appear in a purely decorative form on Early Cretan seals are derived from figured designs belonging to this Egypto-Libyan-group. A striking instance of the genesis of a series of such Minoan derivatives from a pictorial type exhibited by a Sixth Dynasty 'button-seal' may be here pointed out.

The 'double sickle' pattern. Taken over in Crete from Sixth Dynasty button-seals.

It will be seen from the annexed diagrammatic Table, XII (Fig. 65), that a variant design on a series of Early Cretan seals, the principal element of which resembles a kind of double sickle, goes back to a similar motive on Egyptian button-seals. It further appears that on these latter the pattern explains itself[2] by an earlier version, on which we see two couchant lions in reversed positions on either side of a line which divides the field of the seal into two semicircles. The ultimate evolution of the 'double sickle' under the influence of the incoming spiraliform fashions in design can be traced to certain S-shaped figures of a decorative nature which occasionally occupy one of the sides of the Cretan bead-seals of the succeeding hieroglyphic class. The primitive lion type of the Nilotic button-seals seems also to have influenced the arrangement of the animal figures on the Cretan prisms, as illustrated by the reversed pairs of long-necked birds shown in Fig. 65, H, K.

Chronological datum supplied by 'double sickle' types.

The chronological value of this 'family tree' of designs will at once be apparent. The Egyptian 'button-seals' on which the motive originates are confined to the period between the beginning of the Sixth Dynasty and the foundation of the Middle Empire, or, according to the new Sothic dating, between 2540 and 2160 B. C. Before the end of the Eleventh Dynasty they seem to have completely disappeared.[3] The prototype of our series (A), with the two couchant lions complete, was from a tomb at Dendereh belonging to the Sixth Dynasty. B, from a grave at Mahâsna,[4] belonging to the period between the Sixth and Eleventh Dynasties, shows a secondary stage of the design in which the lions' hind legs have coalesced with the base, while in C the base and tail have combined into the characteristic 'double sickle'.

It thus appears that the Cretan version, D, from a steatite button-seal found in the Tholos Ossuary at Hagia Triada, and E, from a three-sided bead-seal of the same material probably found near Knossos,[5] are directly adapted from the secondary stages

[1] The examples are taken from Halbherr, *Memorie del r. Istituto Lombardo*, xxi (1904), Pl. X, Figs. 25, 26.

[2] The essential features of the designs that go to make the 'double sickle' are indicated in black on Table XII.

[3] Newberry, *Scarabs*, &c., p. 58.

[4] J. Garstang, *El Mahâsna*, Pl. XXXIX, 43 and p. 33. Compare, too, a button-seal (*c.* Sixth Dyn.) obtained by Mr. Mace from the cemetery at Hu (Petrie, *Diospolis Parva*, Pl. XXV, Y, 110, and p. 40. A part of the back of one of the lions is wanting but is completed in my diagrammatic figure. The seal is now in the Ashmolean Museum.

[5] *Cretan Pictographs*, &c., p. 76 [345], Fig. 72. Bought in Candia and found in the neighbourhood.

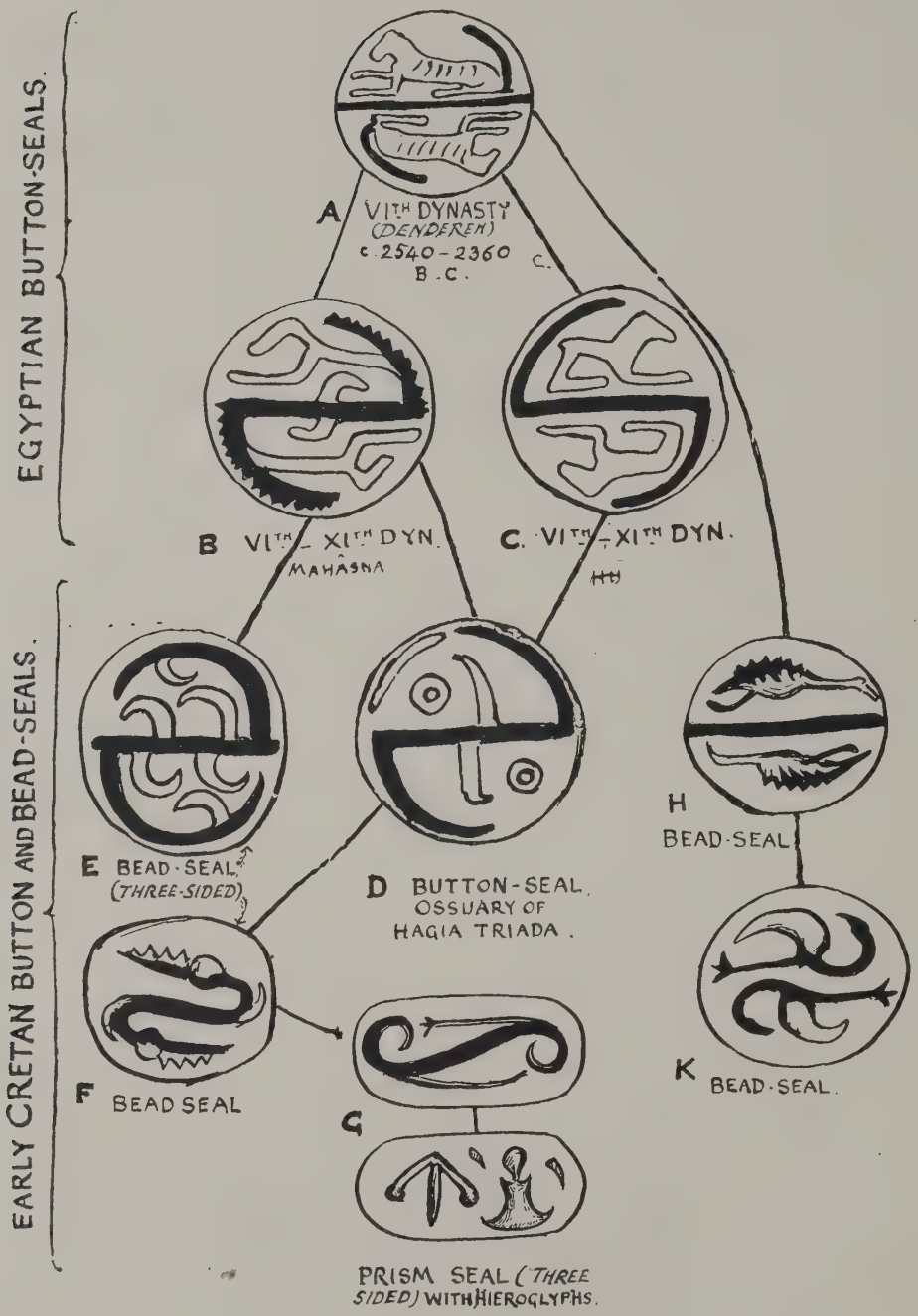

EGYPTIAN BUTTON-SEALS.
EARLY CRETAN BUTTON AND BEAD-SEALS.
A VIth DYNASTY (DENDEREH) c. 2540-2360 B.C.
B VIth - XIth DYN. MAHÂSNA
C. VIth - XIth DYN.
D BUTTON-SEAL. OSSUARY OF HAGIA TRIADA.
E BEAD-SEAL (THREE-SIDED)
F BEAD SEAL
G
H BEAD-SEAL
K BEAD-SEAL.
PRISM SEAL (THREE SIDED) WITH HIEROGLYPHS.

Fig. 65 (Table XII). Diagram showing Derivation of the 'Double Sickle' and Allied Types on Cretan Seal-stones from Egyptian Button-seals of VIth Dynasty.

of the Egyptian design. These secondary stages had, moreover, been reached on the Egyptian side during the period immediately preceeding the Eleventh Dynasty, and it is approximately to the same Age—in round numbers about 2300–2200 B. C.—that the earlier Cretan copies must be referred. It follows from this that the more remote offshoots of these 'double sickle' designs, such as the S-shaped version on F and G, belong to a somewhat later date. It is therefore important to observe that the elongated prism-seal on which this occurs (Pl. 1, P. 2) bears on one of its faces two characters belonging to the early hieroglyphic class of Crete.[1]

Four-sided bead-seal from Egypt, Sixth Dynasty.

Another type belonging to the same Lower Egyptian element as that which produced the button-seals, and contemporary with them, is a four-sided bead-seal of elongated form, which has a special interest, inasmuch as it anticipates the form of a class of Cretan bead-seals which run parallel with the prisms. An interesting example of this type, found by Mr. Garstang at Mahâsna[2] in a tomb of the Sixth Dynasty, or of the period immediately succeeding it, is given in Fig. 66.[3] The signs on this seal are by no means clear. That at the top of face *b* seems to represent the seated human figure with a typical key pattern below, and face *d* shows apparently a lizard, also common to the button-seals.

a *b* *c* *d*

Fig. 66. Four-sided Seal of Green Stone from Mahâsna.

Egypto-Libyan hemi-cylinders. Minoan example.

Another characteristic type of seal belonging to the Egypto-Libyan class with which we are dealing, and covering the same period as the button-seals, is the hemi-cylinder.[4] This form also finds its parallel in Crete. I am able to cite an ivory example from the central part of the island, the intaglio designs on which must be grouped with the most advanced class of simple pictographic representations on the Cretan prism-seals. On the convex side are figures of a man and his bride with four ewers below, apparently of a metal type—the repetition probably indicating abundance of wealth—and paralleled by the triplet of similar vases which occurs on some of the most primitive of the 'hieroglyphic' prisms.[5] On the flat side of the half-cylinder the owner appears as an archer beside a tree shooting at a wild goat, and accompanied by a dog. A very important feature about this hemi-cylinder is that the figure of the man with a short dagger at his waist, seen on the convex side, answers to that of clay figures from the Cretan votive deposits, like that of Petsofà belonging to the First Middle Minoan Age, and associated with the early phase of ceramic polychromy.

[1] Cf. P. 5, below.

[2] J. Garstang, *Mahâsna and Bêt Khallâf* (1903), pp. 33, 34.

[3] See too my *Report of the Ashmolean Museum for the year* 1901, p. 6, Fig. 1.

[4] See Newberry, op. cit., p. 56.

[5] See Pl. I, P. 4 c, P. 5 b.

II. § 3. THE EARLY PRISM-SEALS OF CRETE WITH PICTOGRAPHIC DESIGNS.

Egypto-Libyan connexions of early Minoan Crete illustrated by appearance of prism-seals.

It appears from the above comparisons that a whole series of early Cretan seals show a community of form and motives with an Egyptian group, the work of an indigenous Deltan population. The indebtedness as already observed may not have been always on one side, and Cretan or other Aegean types may well have at times reacted on the 'Egypto-Libyan' class. What is clear, however, is that this interconnexion enables us to arrive at certain chronological equations between the forms of seal in use on either side of the Libyan Sea during the period between the beginning of the Sixth and the Eleventh Egyptian Dynasty. This, as we have seen, according

a *b* *c*

Fig. 67. Black Steatite (bought in Candia).

to the Sothic system of Egyptian chronology, would carry back the seals in question to the middle of the Third Millennium before our era.[1]

We have also direct evidence that the conventionalized early type of the three-sided bead-seals or prisms had come into existence in Crete at least by the end of this period, in other words by about 2200 B. C.—somewhat before the foundation of the Middle Empire in Egypt. The secondary form of the 'double sickle' motive, supplied by a typical example of these prisms (Table XII, E), has in fact been shown to be a contemporary imitation of the same motive as evolved in the later class of Egyptian 'button-seals'. The three sides of this stone are given in Fig. 67 *a, b, c.* The occurrence, moreover, of a specimen of this class of bead-seals in the primitive Tholos Ossuary of Hagia Triada must be taken to confirm the relatively early date at which these Cretan prisms make their appearance. This is further borne out by the parallelism presented by the pictographic designs on this three-sided class with those on a series of ivory seals of various shapes found in the early ossuaries. From the point of view of Cretan archaeology this conventionalized prism type may be said to have originated somewhat before the close of the 'Early Minoan' Age.

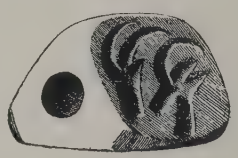


Fig. 68. Early Type of Cretan Prism-seal.

Prism-seals of early pictographic class.

The compact early type of these conventionalized prism-seals shown in Fig. 68 will be seen to be very different from the rough triangular form illustrated by the primitive linear seal, Fig. 48 above. This type of seal, executed in the soft native steatite, is of

[1] See above, p. 127.

very frequent occurrence in the island, and it must have continued in vogue during the early part of the Middle Minoan period. It has a peculiar importance in regard to our present subject, not only as exhibiting the fullest material for our knowledge of primitive pictography on Cretan seals, but as affording the antecedent stage to the more elongated class of prism-seal on which the conventionalized 'pictographic' or 'hieroglyphic' script first appears in a fully developed form. The rude pictorial figures and signs seen on the present series are often themselves the direct progenitors of the hieroglyphic characters on the succeeding group. There is indeed already traceable on this early pictographic series of seals a certain skill in the symmetrical arrangement of the figures, which in some degree anticipates the grouping of the hieroglyphic signs in the succeeding period.

A series of these prism-seals has been given in my earlier works on the Cretan pictographs.[1] Here it may be sufficient to reproduce some typical examples, and to

a *b* *c*

FIG. 69. Grey Steatite (Praesos).

summarize the indications supplied by the materials. Together with the more compact or dumpy type there are also included for these purposes certain prism-seals of more elongated form, representing, apparently, a somewhat later development of the type, but still continuing the same pictographic tradition. It is these seals that are the immediate forerunners of the hieroglyphic class, though the exact line of demarcation between the two is not easy to lay down. The three-sided seal, for instance, Plate I, P. 4—which, apart from the decorative motive of face *b*, presents ideographic pictures of a ship and three ewers—might from some points of view be regarded as belonging to the primitive group.

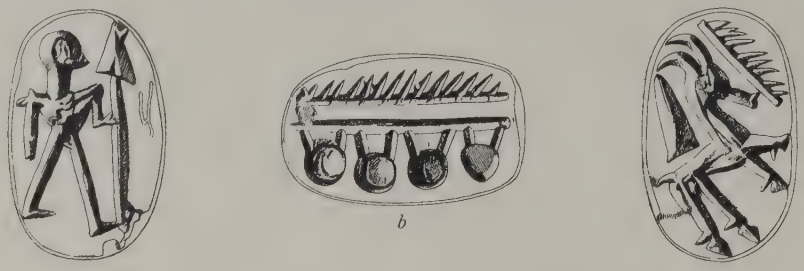
Forerunners of hieroglyphic types.

It is noteworthy that a large number of these primitive prism-seals show a human figure on one or more faces, evidently referring to the owner of the seal. The associated pictorial elements give an idea of his pursuits and possessions. Thus on the seal, Fig. 69, obtained by me from the site of Praesos, its owner was evidently a master of flocks and herds: on face *a* we see him carrying what appear to be leather pails suspended from a pole, while on one side is a spouted vessel of Early Minoan type, and on the other a goat. The owner of the seal reproduced in Fig. 70 is depicted as a warrior holding a spear, but the goat and suspended vessels show that he combined a more peaceful calling. The owners of other seals are associated with

Pictographic figures on early prism-seals.

[1] See *Cretan Pictographs and Prae-Phoenician Script*, pp. 68 seqq. (*J. H. S.*, xiv, pp. 337 seqq.), and *Further Discoveries*, &c., pp. 331 seqq. and Plates I and II (*J. H.S.*, xvii).

fish, and were evidently fishermen.[1] In another case, again,[2] we see two male figures in reversed positions, followed on the sides by a wild goat, and two fishes; but it does



a *b* *c*

FIG. 70. Yellow Steatite (bought at Candia).

not seem necessary to accept Hommel's ingenious suggestion that we have here selections from the Zodiac, namely, Gemini, Capricorn, and Pisces.[3]

The third face of another seal,[4] in which a dog leaps up at a running wild goat, clearly indicates the hunter's profession. A crouched figure, again, drawing a bow

a *b* *c*

FIG. 71. Pale Green Steatite (Crete).

(Fig. 71 *b*), also probably indicates a hunter of the Cretan *agrimi*, like the archer on the half-cylinder described above.

References to potter's craft.

The frequent recurrence of pots in the hands of the human figures on these seals, variant forms of which are shown on all the sides of Fig. 72, suggests that in many

a *b* *c*

FIG. 72. Brown Steatite (Crete—uncertain locality).

cases we have to do with the potter's craft, which in Crete ultimately attained an almost unrivalled perfection. It is interesting to observe that many of these vessels present

[1] Cf. *Further Discoveries*, p. 332, No. 8, and *Cretan Pictographs*, p. 70, Fig. 59.

[2] *Further Discoveries*, &c., Pl. I. 8 (*J. H. S.*, xvii, Pl. IX. 8).

[3] Cited by Furtwängler, *Antike Gemmen* III, p. 28, Note 2.

[4] *Further Discoveries*, Pl. I. 6 *c* (*J. H. S.*, xvii, Pl. IX). The other faces of this seal seem to refer to the potter's industry.

very primitive types, such as the 'askos'-like form, betraying a not remote origin from a skin vessel, seen in Fig. 6, and the pots with a round bottom and 'suspension' handles. We have here an indication of a relatively early date.[1]

Fig. 73 *a* is of special interest, as it seems to indicate a man within a fenced enclosure. The animal shown on the second face of this stone bears some resemblance to a camel, which would indicate an intercourse with the Syrian coast.

In some cases the delineation of the owner is omitted, but certain figures on the seal obviously relate to his property or pursuits. Thus a pair of arrows, in one case conjoined, stand for a hunter. The ship on other seals denotes the seafaring craft of the owner. The recurrence of the pig shows that swine were largely kept, and what seems to be a rude engraving of a cock[2] (Fig. 74 *a*) may be taken to show that this bird—the original home of which has been sought in Persia—was domesticated in the Aegean world at a very early date. The frequency of the spider suggests that this was an ideograph connected with the spinning industry; and it is noteworthy that in Greek mythology the spider appears in the legend of Arachnê as representative of the textile art among the Lydians, who were so nearly related to the original Cretans.[3]

Allusions to various pursuits and industries.

a *b* *c*

Fig. 73. Yellow Steatite (Crete).

a *b* *c*

Fig. 74. Brown Steatite (Central Crete)

Recourse is often had to the graphic device of substituting a part for the whole, such as a spray for a tree, or the head of a goat, of a horned sheep, or of an ox, for the animal itself. Among more symbolic ideographs the solar or stellar disk with revolving rays, and a four-petalled flower, are of frequent appearance. It is also to be noted that the repertory shows a certain community with that of the primitive Nilotic class described above—spiders and scorpions, for instance, recurring on both. If, as it

[1] See *Cretan Pictographs*, &c., p. 63 [332], and Fig. 52, *a*, *b*, *c*.

[2] Op. cit., p. 73 [342], Fig. 65 *a*.

[3] *Further Discoveries*, &c., p. 333.

appears, a stout-legged long-necked bird (Fig. 75 *a*) on one stone may be identified with an ostrich,[1] we have a reference to trade relations with the southern shores of

a *b* *c*

Fig. 75. Yellow Steatite (Crete).

the Libyan Sea. On the protodynastic cylinders of Egypt the ostrich is constantly repeated.

II. § 4. SEALS AND SEALINGS OF THE CONVENTIONALIZED PICTOGRAPHIC OR HIEROGLYPHIC TYPE.—CLASS A

Evolution of hieroglyphs from primitive pictographs.

The class of prism-seals described in the preceding Section already introduces us to a rude form of pictorial expression, by means of which the occupations and possessions of the owners were set forth. In the succeeding period we see seal-stones, representing an outgrowth of the same three-sided class, becoming the vehicle for signs of a more abbreviated and conventionalized character, recalling the hieroglyphics of Egypt. In the earlier class we have undoubtedly to do with simple ideographic figures, varied as the occasion demanded. What we now find is a selection of characters, many of which seem to have acquired a phonographic value as syllables or letters, over and above their original ideographic meaning.

Phonographic value of signs.

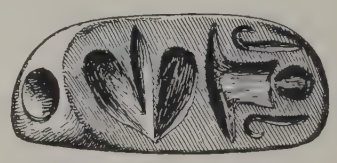


Fig. 76. Elongated Prism-seal of Class A.

Elongated prism-seals.

The stones themselves are almost invariably[2] of the more elongated form (see Fig. 76) which, as shown above, characterizes the latest class of the 'primitive pictographic' prism-seals. This elongated shape does not appear to have been reached during the period covered by the early tholos ossuaries, and may be unhesitatingly placed within the limits of the Middle Minoan Age. The evolution of the longer field is itself explained by its greater convenience for holding groups of characters.

Overlapping of earlier pictographic elements.

It is clear that the latest class of 'primitive pictographic' seal-stones largely overlaps the earlier prisms of the present series. As already remarked, it is not always easy to draw the line of demarcation between the two. Simple pictographic figures occasionally occupy two sides of a seal, while characters of the more conventionalized class appear on the third. An example of this is given in Fig. 77.[3] Here

[1] *Cretan Pictographs*, &c., pp. 72, 73, Fig. 64 *a*.

[2] The specimen reproduced in Pl. I, P. 6, is an exceptional example of a shorter form.

[3] See Pl. I, P. 1, and *Further Discoveries*, &c., p. 335, Fig. 5.

faces *b* and *c* are occupied by figures of a dog and a spider, both taken from the usual repertory of the primitive pictographic group of seals, and possibly referring ideographically to the occupations of the owner. Face *a*, on the other hand, contains two characters, the gate and bent leg, which run through the whole hieroglyphic series in the same collocation, though sometimes with an additional sign. Reasons will be given below for supposing that we have here an official title.[1]

Hieroglyphic seals of Class A.

The hieroglyphic prism-seals, which thus run parallel with the latest variety of those showing purely pictographic figures, are, like these latter, all of soft stone —the native steatite. With these may be grouped the closely allied bead-seals of the same elongated form with four sides instead of three, represented by Plate I, P. 11, and the more abnormal forms shown by Plate I, P. 12–14. Of these the first is an early example of the lentoid bead, the second a perforated 'tabloid', and the third a mere rude finger of yellow steatite with characters in a style closely resembling what has been above described as the primitive linear. Only in the amethyst scarab (P. 9), of Egyptian type though engraved with Cretan characters, do we find a hard material used for these early 'hieroglyphic' seals.

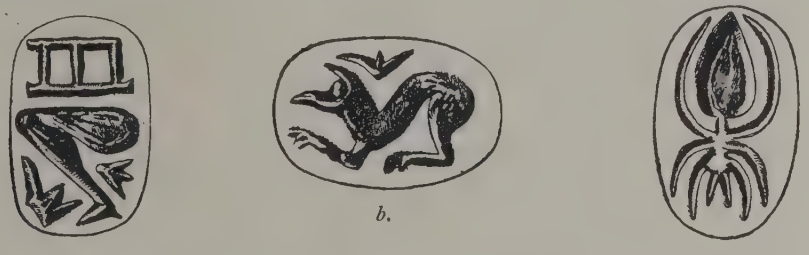


Fig. 77. Steatite Prism-seal, from Impressions obtained at Candia. (2/1.)

These most primitive types of the seal-stones presenting the Conventionalized Pictographic Script are grouped together in Plate I as Class A. From the evidence supplied by the prevailing prism-type, including some more purely pictographic examples of contemporary fabric, we gain more than one approximate indication of the chronological place of this earliest 'hieroglyphic' class.

Chronological indications supplied by seals of Class A.

It has already been shown that the elongated prism-seal represents the later outgrowth of the more compact type, an example of which already occurred in the Hagia Triada Ossuary, and which shows the influences of Egypto-Libyan button-seals. These connexions are thus seen to go back to the period between the Sixth and Eleventh Dynasties; and it follows that the earliest types of the succeeding elongated forms of prism-seals belong to the immediately succeeding period, corresponding with the Eleventh Dynasty of Egypt—according to the Sothic dating 2160–2000 B. C.

This early class seems, however, to have at least partially overlapped the Twelfth Dynasty. Already, in my first book on Cretan Pictographs, I pointed out a series of parallels between decorative designs on Twelfth Dynasty scarabs and certain prism-

[1] See below, pp. 269, 270.

seals of the present class, together with some advanced types of Cretan button-seals or conoids (see Fig. 78). I was then, it is true, under the erroneous impression that the spiraliform system, which plays a part in these designs, had its original source in Egypt, and spread thence across the Aegean. But though what actually occurred was the reverse of this, the evidence of an interrelation between certain Twelfth Dynasty scarab designs and those on Cretan prisms of the present class can hardly

Relations with Twelfth Dynasty scarab types.

Fig. 78

be gainsaid. Of the two examples *c* and *f* given in Fig. 78, *c*, from a scarab found at Kahun, clearly represents the earlier stage of the pattern seen in *f* below, which appears on a Cretan prism-seal of yellow steatite.

But the earlier form of this double scroll, as seen on the Twelfth Dynasty scarab, Fig. 78, *c*, itself suggests Minoan parallels; and, whatever the relation of this and kindred designs to Egyptian examples, they must be taken in connexion with a whole

Fig. 79.

family of coil patterns affected by Cretan craftsmen in more than one branch of art. Such coils and flourishes, in fact, play an important part in the elaborate polychrome decoration of the vases of the so-called Kamáres class, which attained its acme during the Second Middle Minoan Period.

Amethyst scarab of Twelfth Dynasty

A concrete example of this connexion with Middle Empire Egypt is supplied by an amethyst scarab (Fig. 79), found in 1897, in the Dictaean Cave: it belongs to a characteristic class of scarab, executed in this material, which came into fashion in

Egypt about the middle of the Twelfth Dynasty, and continued in vogue during the immediately ensuing period. It is a characteristic of the earlier class of these amethyst scarabs that they were usually left plain below, their base being subsequently covered by a gold plate, upon which the device or inscription was incised. This was, naturally, often lost, or it was never added, so that plain amethyst scarabs of this period are of frequent occurrence, and more than one specimen has been found in Crete. That scarabs of this class were occasionally made use of by the insular engravers had already been made apparent from a specimen found in the Hagios Onuphrios Deposit, the base of which has been simply decorated with three circles by a native hand.[1] The present example is of much greater interest, for the field has been here engraved with three characters—namely, a solar or stellar symbol (No. 108 in the list of hieroglyphs below)—consisting of concentric circles and revolving rays, and a beaked vase (No. 47 below), twice repeated,—both of these signs being drawn from the regular repertory of the conventionalized pictographic or hieroglyphic script. The form of the vases answers to that on the earlier series, and has led me to place this amethyst scarab seal in Class A. It is the only seal of hard material in this series, and the rudeness of the work shows that it belongs to a time when Minoan seal-engravers were only beginning to attack hard stones. The attempt may well have been due to their having had this amethyst scarab of Egyptian fabric ready to hand.

type with Minoan hiero-glyphs.

We thus see that Cretan seals of Class A, presenting the hieroglyphic script in its early stage, supply internal evidence of interrelation with Egyptian scarab types of the Middle Empire. It would even appear that the earliest Cretan seals presenting the first stage of the true hieroglyphic stage must be carried back to the beginning of that period, and to the Eleventh rather than the Twelfth Dynasty. The more primitive examples of the elongated prism-seals, in fact, fit on very closely to the dumpier pictographic class, which belongs to the close of the 'Ossuary Period', and, as has been shown above in Table XII, still bears traces of the Sixth Dynasty types of Egyptian button-seals.

Class A goes back to Eleventh Dynasty.

This conclusion receives a striking corroboration from the discovery—already referred to above[2]—of clay seal-impressions, exhibiting the hieroglyphic script in its archaic stage, in certain stratified deposits belonging to the Earliest Palace period at Knossos. Thus the two sealings, P. 15, 16 below, presenting characters of a broad primitive type, were found in the SE. Pillar Room on a floor-level belonging to the First Middle Minoan period, and associated with polychrome pottery of the early 'geometric' class that characterizes this epoch. They were separated, moreover, by a distinct floor-level from the immediately overlying stratum containing polychrome pottery of the more advanced fabric, that marks the Second Middle Minoan period.

Seal-impressions of Class A from M. M. I deposits at Knossos.

But a new fixed point in this connexion has now been supplied by the Abydos Tomb,[3] containing inscribed cylinders of Senusert (Sesostris) III, and Amenemhat III, in

The new evidence for Middle

[1] See *Cretan Pictographs*, &c., p. 56 [357], and *Supplement*, p. 105. [2] See above, p. 19. [3] See p. 19.

Minoan chronology.

association with an imported polychrome vessel belonging to the close of the Second Middle Minoan Period. It will be seen, therefore, that the decidedly late example of the Minoan polychrome style found on this tomb belongs, if we provisionally accept the minimum dating supplied by the Sothic system, to about 1880 B. C.[1] The Second Middle Minoan Period characterized by the fine polychrome style might thus be taken roughly to correspond with the Twelfth Dynasty of Egypt, which, on the above showing, begins about 2000 B. C.

It thus appears that the earlier polychrome class, the Middle Minoan I, with which these archaic hieroglyphic sealings were associated, must go back to the closing centuries of the Third Millennium before our era. Broadly speaking, the period to which it belongs may be said to correspond with the Eleventh Dynasty, which, according to Dr. Eduard Meyer's chronology, may be dated from about 2200 to 2000 B. C.[2]

Of the two sealings from the early Deposit in question, one appears to be from some large stamp, the others may be from a somewhat irregularly shaped, elongated prism-seal. Fragmentary remains of similar seal-impressions—one showing a characteristic archaic form of the arrow-head sign—also occurred in a remarkable deposit brought to light beneath the pavement level in the West Wing of the Later Palace.[3] The hoard of objects here found together, representing the accumulation of a continuous space of time, perhaps of no very long duration, shows the actual transition from ceramic and other types characteristic of the Early Minoan stage of culture to those of the First Middle Minoan phase.

A pyxis and lid from this Deposit with incised and punctuated decoration, gypsum inlaid, are practically identical with those from the earliest metal age graves of the Cyclades, and with others from the primitive Cretan ossuaries. The globular and bugle beads, moreover, of pale blue faience with very large perforation also found here, imply a Sixth Dynasty Egyptian tradition—such as has been noted above in the case of certain early seals. On the other hand, a series of vase types included in this hoard were of the usual First Middle Minoan style, here, as elsewhere, associated with incipient polychromy. We have here, again, good warrant for concluding that the earlier class of hieroglyphic seals goes back to the very beginning of the Middle Minoan Age.

II. § 5. SEALS EXHIBITING THE CONVENTIONALIZED PICTOGRAPHIC OR HIEROGLYPHIC SCRIPT OF CLASS B.

Hieroglyphic seal-types of Class B.

From the seal-types illustrating this Conventionalized Pictographic Script in its more archaic aspect (Class A) we are led by transitional stages to those of the fully developed style depicted on Plate II. Although some of the types are obviously less

[1] Eduard Meyer, *Aeg. Chronologie*, p. 57.

[2] In his *Nachträge zur aegyptischen Chronologie* (1908), p. 30, Dr. Meyer carries back the beginning of the Eleventh Dynasty to about 2200 B. C. In his *Aegyptische Chronologie* (p. 178) he had suggested 2160 to 2000 B. C. as the limits of this Dynasty.

[3] Near the 'East Pillar Room'. See 'Knossos', *Report*, 1903, pp. 94 seqq.

advanced than others, the whole of the series is grouped together for convenience' sake as Class B.

One broad distinction affecting this later group may at once be made. While the earlier hieroglyphic seals are almost exclusively cut out of soft material, usually steatite, those of the present class are, with very few exceptions,[1] of hard stone. The materials principally used are red and white cornelian, chalcedony, and green jasper. This use of hard materials in itself implies a considerable advance in technical skill, and in some examples a combined elegance and boldness of design is achieved, which evidences extraordinary perfection in the gem-engraver's art. We note, moreover, in the case of the prism-seals, that purely pictographic representations occupying whole faces of the seal become rarer, and at the same time the number of hieroglyphic signs grouped together is greater than before.

Use of hard stones.

The typical forms of seal belonging to Class B are the following :—

Seal-types of Class B.

(*a*) The prevailing type is still the three-sided bead-seal or prism, Fig. 80 (P. 17–24), generally of elongated form, though occasionally (as P. 19 and P. 20) of shorter proportions.

The following new types of seal-stones with hieroglyphic characters now appear :—

(*b*) The exceptionally globular variety of *b*, exemplified by P. 31, with circular fields

Fig. 80 (2 diams.).

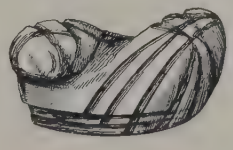


Fig. 81.

is best placed in a class by itself. This type of three-sided bead-seal as a vehicle for pictorial or decorative designs persists into Late Minoan times. An amethyst specimen of this form, engraved on two of the sides, was found in the Vapheio Tomb.[2] Late Minoan II and other examples more or less contemporary with this are known both from Crete and Mycenae.

(*c*) The four-sided equilateral form of bead-seal (P. 25–30) is also well represented. An Egypto-Libyan parallel for this type is given above, p. 129, Fig. 66. One example of white steatite (P. 26) is of abnormal length, and contains as many as forty-one characters, not counting signs of division. Several of the impressions on the clay sealings from the Hieroglyphic Deposit of the Palace at Knossos obviously belong to seals of this or the succeeding type.

(*d*) A remarkable form, the engraved base of which, with two very linear characters, like **OX**, is given under P. 32. The upper side shows, in a degenerate and scarcely recognizable shape, two fore-parts of lions, in reversed positions, rudely cut in relief (Fig. 81). The material is a bluish chalcedony. Another specimen of this type, with the

[1] The exceptions known to me are P. 26 (white steatite) and P. 25, erroneously described in *Picts.*, &c., p. 28 [297], Fig. 35, as 'green jasper', which it greatly resembles, but which proves to be steatite.

[2] Ἐφ. Ἀρχ., 1890, Pl. X. 5, 6.

fore-parts of the lions more clearly indicated, is in the Pauvert de la Chapelle Collection, now in the Bibliothèque Nationale at Paris.[1] It was found in Crete, and is of banded agate. The design consists of four globular two-handled vessels symmetrically grouped in pairs, and recalling similar vessels on the earlier class of Cretan prisms. This archaic characteristic may indicate that the present example might more appropriately have been grouped with Class A.

Convoluted seals.

(*e*) Bead-seals with convoluted upper surface resembling two hollow leaves curving in reversed directions. A very beautiful specimen of this type from Eastern Crete is

Fig. 82 *a* (2 diams.).

Fig. 82 *b*.

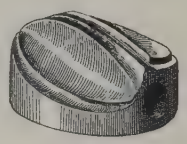


Fig. 83.

shown in Figs. 82 *a*, 82 *b*. It is of white cornelian.[2] A coarser type of the same material from Gortyna (P. 34) is given in Fig. 83.

Oblong bead-seals.

(*f*) An oblong bead-seal, the faces of which curve slightly outwards (P. 41). It might be described as a 'flattened cylinder'. This type continued in use in Late Minoan times, and some gold beads of this form with very fine intaglios occurred in the Acropolis Graves of Mycenae.[3] Similar bead-seals of the same Late Minoan age are found in Crete, executed in cornelian or agate, and in one case in black steatite with gold plating. That the example illustrated in P. 41 belongs to a comparatively

Fig. 84.

a

b

Fig. 85. Green Jasper Signet, 'Stò Dháso. (2/1.)

advanced period is shown from the pictorial design of a dog seizing a wild goat that appears on one face of the stone.

'Signet'-seals.

(*g*) 'Signet'-shaped seal-stones (P. 36–40) of curiously modern form (Figs. 84–87). The stem is often of a highly decorative character, spirally grooved and faceted. In the beautiful specimen given in Fig. 86, the loop of which, however, is unfortunately broken off, the base has an elegant quatrefoil outline. This signet shows the not infrequent wolf's (or dog's) head hieroglyph by itself with protruding tongue;

[1] E. Babelon, *Collection Pauvert de la Chapelle*, No. 72 (p. 28 and Pl. VI), describes the stone as follows: 'Scarabéoïde en agate rubanée. A la place de la carapace de l'insecte, deux protomés de lion en relief, placées côte à côte, mais dirigées en sens inverse.'

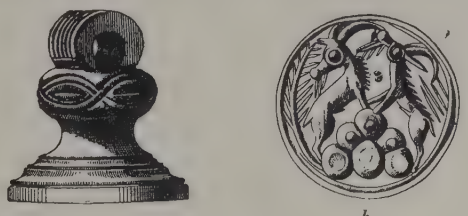
[2] The lower face of this is also given in Pl. II, P. 33. See too *Picts.*, &c., p. 19, Fig. 21 and Fig. 38. P. 35 is from a similarly shaped seal of red cornelian.

[3] Schliemann, *Mycenae*, p. 174, Nos. 253–5.

and in some other cases also this seal type is associated with single characters, at times animal symbols like the above, such as a cat (P. 36) and an owl (P. 37). Sometimes the design is purely decorative (see Fig. 88 below), or of a pictorial nature. A yellow cornelian signet of this latter class, from near Girapetra,[1] exhibiting wild goats on a rocky peak (Fig. 87 *a*, *b*), has its stem surrounded by a guilloche or twisted

a *b*

Fig. 86. Red Cornelian Signet from Kedrie near Girapetra (Hierapytna). ($\frac{2}{1}$.)



a *b*

Fig. 87. Yellow Cornelian Signet from Khadra. ($\frac{2}{1}$.)

band—a feature of which the first dated examples on Egyptian seals seem to belong to the Hyksos period.[2]

The elegant 'signet'-seals of this period may with great probability be regarded as ultimate descendants of the pear-shaped seals of the Early Minoan Ossuaries, a specimen of which is given above in Fig. 54. The tradition of the simple triquetral pattern there shown seems to survive, moreover, in the more elaborate trefoil scrolls seen on more than one of the signets of the present class, of which a good example from the neighbourhood of Praesos is reproduced in Fig. 88. Evolution of 'signet'-seal.

A variant form of the later class of signet is shown in Figs. 89 *a*, 89 *b*. It presents

Fig. 88. Green Jasper Signet from Praesos.

Fig. 89 *a*.

Fig. 89 *b*.

a simpler and less elegant contour than those described above, and its more archaic character is further illustrated by its material, which is yellow steatite. It may be conveniently taken, therefore, as standing at the head of the present class of 'signet'-seals.

This 'signet'-seal was found in a deposit containing polychrome pottery of the finest Middle Minoan fabric (M. M. II). This ceramic class, as we know from the evidence of Abydos and Kahun, roughly corresponds with the Twelfth Egyptian

[1] See *Further Discoveries*, &c., p. 344.

[2] Border of scaraboid of Apepy I. Newberry, *Scarabs*, Pl. XXIV. 35. Twisted *Uraei* occur on a cylinder of Khyan, op. cit. Pl. VII. 10. For further Hyksos examples see Petrie, *Hyksos and Israelite Cities*, Pl. IV (Yehudiyeh), Figs. 178, 183. The triple threads of the twisted band on the last example supply a very near parallel to that on Fig. 87. A simple form of the twisted band also occasionally appears as a scarab border in the early part of the Eighteenth Dynasty (Scarab of the Princess Neferu-ra.—Petrie, *History of Egypt during the Seventeenth and Eighteenth Dynasties*, p. 78, Fig. 39).

Twelfth Dynasty relations of an early 'signet' type.

ynasty; and it is therefore of particular interest to note that the coiled cruciform design on the present signet finds its closest parallel in certain scarab types of that period. These show, in fact, the direct adaptation to an oval field of the circular pattern here seen. A cruciform scheme of this class occurs on a sealing of one of the Kahun papyri,[1] and is repeated, with a small circle in the middle, on another Twelfth Dynasty scarab impression from the same site (Fig. 90).[2] The great documentary age of Kahun to which the hieratic papyri mostly belong is the reign of Amenemhat III,[3] or, according to the Sothic chronology, c. 1849–1800 B. C. On whichever side the indebtedness may lie it is clear that both the Minoan and the Egyptian forms of this design must be referred to the same approximate date. It follows that the signet-seals of the present class, which stand in a very near relation to that shown in Fig. 89, go back to the borders of the same period. How near, in fact, they stand to this example will be seen by a comparison with the quatrefoil design shown on Fig. 86. In that case the four reserved curves with their cross striations correspond with the similarly striated curves of the cruciform figure on the present signet.

Fig. 90.

Possible influence of metallic forms

It is possible that the particular form of the stem of the present seal, with the three rings below the perforation, may be due to the influence of some type of metal signet of the same class, the loop of which was held together with a triple coil of thick wire. It is to be noted, moreover, in this connexion, that one of the clay sealings of the Hieroglyphic Deposit at Knossos (P. 64 *a* below), from a round stamp apparently belonging to a seal of the 'signet' class, seems, from the fineness of the engraved lines, to have been produced by a metal stamp. The same metallic appearance is presented by a stamp, perhaps from a signet of this type, that occurs on the handle of two vases found at Palaikastro.[4] We seem here to have a maker's mark, in all probability supplying his name.

Special personal relation to signets.

Two other circular stamps, probably from signets of the above class, on clay sealings from the Hieroglyphic Deposit, reproduced below,[5] have a quite exceptional interest as exhibiting the first attempts at personal portraiture in the Aegean world. This, taken with the repeated appearance on these signets of single animal types which may have borne the significance of *types parlants*,[6] tends to show that seals of this class stood in a special personal relation to their owners.

Appearance of portrait types.

The association of the 'signet'-seal, Fig. 89, which stands at the head of that series, with pottery of the fine polychrome class, is further illustrated by the appearance on other seals of the present category of decorative scrolls showing distinct affinities with those on vases illustrating the most advanced phase of this ceramic

[1] Petrie, *Kahun*, &c., Pl. X. 20.

[2] Petrie, *Illahun*, &c., Pl. X. 176, and *Egyptian Decorative Art*, Fig. 34. Cf. *J. H. S.*, xxii (1902), p. 89, Fig. 31. It is there compared with an early sealing from the hoard discovered by Mr. Hogarth at Zakro (ib., Pl. X. 134).

[3] See F. Ll. Griffith, 'The Historic Papyri of Kahun' (*Kahun*, &c., pp. 45 seqq.), and *Illahun*, &c., pp. 47 seqq.

[4] See below, p. 147, P. 43.

[5] p. 272.

[6] See below, p. 264.

style.[1] It would thus appear that the sphragistic records of Class B of the hieroglyphic script go back at least to the lower borders of the Second Middle Minoan period.

Bulk of seals of Class B belong to Third Middle Minoan period.

But the advanced naturalism that strikes us on many of the seal types of the present category points rather to the succeeding Third Middle Minoan as the most flourishing age of this later hieroglyphic class. That the first attempts at portraiture should be associated with this class of script is itself highly significant. A considerable degree of naturalism, again, in rendering animal forms is evidenced by the horned owl on P. 37 and the dove preening its wings on P. 31 *a*, or the lily on face *c* of the same stone. Such designs at once transport us from the more geometrical traditions of the great age of ceramic polychromy to the free and beautiful style which attains its fullest development towards the close of the Third Middle Minoan period.

Naturalistic types.

These naturalistic associations are strikingly confirmed by the contents, already referred to,[2] of the remarkable deposit of clay documents and sealings in the later hieroglyphic style found in the early Magazine north of the Long Corridor of the Knossian Palace. It is hardly too much to say that some of the seal-impressions found there in company with the stamps of hieroglyphic signets belonging to the present class excel in picturesqueness of treatment any glyptic records that have been preserved to us from the Ancient World.[3]

The highly pictorial designs on these impressions seem to have been engraved on early examples of the lentoid form of gem so generally in use during the closing periods of Minoan and Mycenaean culture. No examples are known of such stones which can be ascribed to Class B of the present series exhibiting hieroglyphic characters, though a specimen, belonging apparently to the more archaic series, and executed in soft stone, has been given in P. 12. The lentoid form of seal itself, as executed in soft stone, goes back in Crete and the Aegean world to the Early Minoan age, and a specimen of black steatite in my collection shows two heads of horned sheep or moufflons in a style identical with that of the primitive prism-seals and conoids of the 'Ossuary Period' (E. M. II and III).

Persistence of certain seal types of Class B into Late Minoan age.

In other respects the new forms of seal that now appear also show a correspondence with those in vogue during the Late Minoan age. The globular three-sided bead-seal (*b*) persists, and the oblong form (*f*) is also a common Late Minoan type. All this is in harmony with the relatively late period covered by the seals of the hieroglyphic Class B.

Considerable break nevertheless observable at close of hieroglyphic series.

Nevertheless, it must be said that, in spite of the persistence above noted of one or two forms belonging to this class, there is still a considerable break between the types associated with the full development of the hieroglyphic script and those in vogue during the Late Minoan age.

Thus the most typical three- and four-sided bead-seals are no longer seen. Neither do we find the 'signets', the seals with convoluted backs or with the reversed lions.

[1] Compare, for instance, those on the fine prism-seal, P. 23 *c*, with some of the characteristic scrolls on the polychrome vessel of very advanced and elaborate decoration found in the West Building at Knossos ('Knossos', *Report*, 1903, p. 120, Fig. 75).

[2] See p. 20, and cf. pp. 144 seqq. below.

[3] See Fig. 11 *b*, p. 22, above. Others will be given in my general work on the 'Palace of Minos'.

Change in sphragistic usage in Late Minoan times: absence of inscribed seals.

The use of seals, moreover, as inscribed stamps had almost entirely gone out,[1] and for it had been substituted, as we shall see, the practice of signing and countersigning the clay sealings with graffito inscriptions of the later linear classes. Intaglios were still used as seals as well as ornaments, but their subjects were of a pictorial or decorative character.

Evidence of great deposits of seal-impressions.

By the date of the great deposits of seal-impressions belonging to the transitional age that marks the close of the Middle Minoan period and heralds the beginning of the Late Minoan age this revolution in custom had already taken place. It may, indeed, be due to some special cause that the Zakro hoard,[2] consisting of about five hundred seal-impressions, which probably reaches somewhat far back into the Third Middle Minoan age, only contained two representatives of the hieroglyphic class—one of somewhat archaic aspect, P. 10, Pl. I.[3] At Hagia Triada and in the Temple Repository of Knossos hoards of seal-impressions belonging to a somewhat later phase of this transitional period produced no solitary specimen with hieroglyphic characters. It is to be noted that all these deposits were associated with clay documents in the linear script of Type A.

Among the engraved seal-stones and rings found in the Shaft Graves of Mycenae which go back to the limits of the same period as that covered by the two Cretan Deposits last named, as well as in the later cemeteries there and those at Knossos and elsewhere, no single specimen of the true hieroglyphic class has come to light.

II, § 6. THE CLAY DOCUMENTS EXHIBITING GRAFFITO INSCRIPTIONS AND SEAL-IMPRESSIONS OF CLASS B FOUND IN THE HIEROGLYPHIC DEPOSIT AT KNOSSOS.

The Hieroglyphic Deposit at Knossos.

A short account has already been given in the first part of this book[4] of the discovery in the Palace of Knossos of a deposit of clay documents of various forms illustrating the hieroglyphic script in its graffito as well as its sphragistic form. This Hieroglyphic Deposit belongs, as was pointed out above, to the early phase of the West Wing of the Knossian Palace, which, according to the latest indications at hand, seems to go back within the limits of the Second Middle Minoan period. It covers, however, a part of the succeeding Third Middle Minoan age, and, judging from the exquisite naturalistic style of some of the gem impressions upon the clay sealings there discovered, it must come down to a very advanced stage in this latest phase of the Middle Minoan culture. It is at the same time remarkable that in the Temple Repositories of Knossos and other deposits that mark the final catastrophe of this

[1] An oval steatite bead-seal with linear characters of Type A has been recently found in the 'Little Palace' at Knossos, and one or two isolated cases are known of linear signs appearing on the field of Late Minoan lentoid gems.

[2] D. G. Hogarth, 'The Zakro Sealings' (*J. H. S.*, xxii, 1902, pp. 76 seqq., and Plates VI–X).

[3] Placed in Class A on Plate I.

[4] See above, pp. 20, 21. The Deposit itself was found in a much disturbed condition, and isolated specimens occurred in the adjoining area. There can be no doubt, however, as to its homogeneous character.

stage in the Palace history the records of the hieroglyphic script have entirely given place to the advanced linear script of type A. From some cause or other—possibly owing to a dynastic revolution—the hieroglyphic form of writing had become obsolete at Knossos somewhat before the date of this catastrophe, which has been approximately dated above,[1] on the ground of various lines of evidence, at about 1600 B.C.

The contents of this Deposit are still of quite unique importance, since, with the exception of a stray tablet from Phaestos[2] and the early example now at Berlin, they still supply the only record of the written as opposed to the glyptic documents of the hieroglyphic script. They are also of especial value as bringing together the two forms of the script illustrated by the graffito inscriptions and the impressions of the seals.

Classes of clay documents.

The clay documents found in the Hieroglyphic Deposit[3] divide themselves into the following categories:—(*a*) sealings, (*b*) clay 'labels', (*c*) perforated bars with four

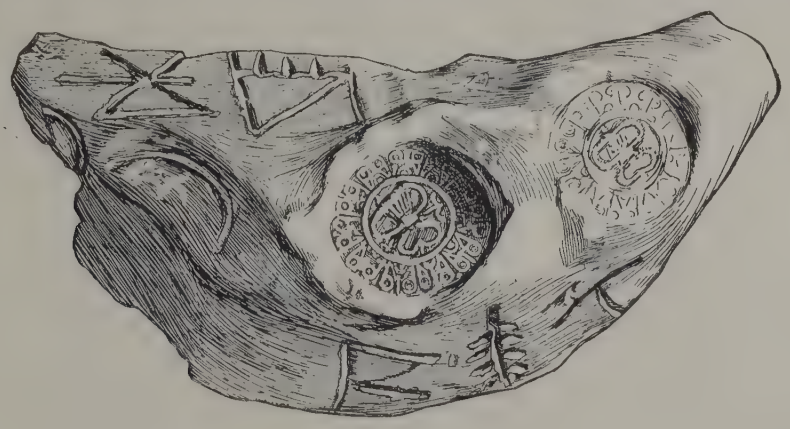


FIG. 91. ($\frac{3}{1}$.)

sides, (*d*) a perforated bar or 'prism' with three sides, and (*e*) oblong tablets. The Phaestos example is included in this latter class.

Sealings.

(*a*) *Clay sealings.*—The sealings found in the Hieroglyphic Deposit of the Palace, with which the script in its graffito form was associated, were all of the more or less three-sided form seen in Plates III and IV. A good example of one of these is given in Fig. 91. It will be seen that it has a perforation along its major axis through which the string passed by which the box or document was secured. This form of clay sealing occurs already in Egypt in the time of the early dynasties.

One side, as usual, is flatter than the other, and in the present case a graffito inscription is seen on all three sides. On side *b* may be noted the sacred double axe and a character answering to the Egyptian 'Palace' sign. Between the two narrower sides is a kind of rounded crest upon which is a double stamp (see below, P. 64 *a*), produced by the same seal, apparently of the signet form. This signet was itself

[1] See p. 31.

[2] See below, p. 148.

[3] Together with one or two specimens found in the immediately adjoining area, and unquestionably derived from it owing to a previous disturbance.

a work of art. The two hieroglyphic characters—one of them a lyre—contained in its field are surrounded by a highly decorative border, and, as noted above, the fineness of the engraving leads to the conclusion that the seal was of metal—possibly, in the case of so elaborate an example, of gold.

Fig. 92 shows a variant form presenting inscribed characters on its flat and narrow

Fig. 92.

side (P. 50 *b*, *c*) and with the print of a hieroglyphic seal repeated on its rounded upper side (P. 50 *a*).

Occasionally, in place of the repetition of the same stamp, we see two impressions, apparently from different faces of a prism-seal (P. 69 *a*, 1, 2), or one such impression

Fig. 93.

Fig. 94.

accompanied by that of a signet (P. 63 *a*, 1, 2). Special attention will be called in § 15 below to a sealing of this class in which the counter-stamp shows the delineation of a portrait-head.

The hieroglyphic stamps on these sealings are not infrequently coupled with others from intaglios exhibiting pictorial as well as decorative subjects. At times, as in the case of the sealing reproduced in Fig. 93, we see, in addition to the print of a three- or four-sided bead-seal with a hieroglyphic sign-group, imperfect impressions of two 'signets', one showing an early decorative device, another from a lentoid intaglio depicting

a hunting scene. There also appears the corner of a fifth impression, from a rectangular bead-seal, on which is visible a female figure apparently taking part in one of the orgiastic cult-scenes common on the Minoan signet-rings.[1]

The decorative design on the uppermost impression of the foregoing sealing is of an archaic character, and the same must certainly be said of the pattern twice repeated on the sealing P. 53 *a*, Pl. III. This latter device seems to have been produced by a 'signet'-seal belonging to the beginning of Class A, which must have continued, therefore, in use as an heirloom. In variant shapes it is a favourite pattern, both glyptic and ceramic, of the First Middle Minoan period. Fig. 94 shows a sealing with impressions presenting a similar type found on a floor-level of this period in the SE. Pillar Chamber at Knossos. It will be further seen that this early signet type enters into the composition and lies at the root of a whole series of fantastic outgrowths on the Zakro sealings.[2]

In only one case is there any obvious correspondence of the sign-groups engraved on the seal used for the stamp of the clay nodules and those of the graffiti. In P. 54,

Fig. 95.

however, the collocation of the eye and 'arbelon' signs, which are twice repeated in the impressions from two different seals, recurs in the inscription at the base of the sealing, where they are accompanied by two other characters.

At times, as in P. 76, these clay 'sealings' bear no seal-impressions, but are simply inscribed with graffito hieroglyphs.

Clay labels.

(*b*) *Clay 'labels'*.—These are in shape somewhat like a flat bivalve shell with a perforation through the valve (see Fig. 95). They were obviously intended to be attached by means of a string to various properties. They bear no seal-impressions, but are generally inscribed on both sides with Minoan hieroglyphs.

Clay bars.

(*c*) *Clay bars with a square section* (Fig. 96 *a*, *b*). These bars are often perforated at one end, and in such cases may have been attached to bales or other possessions like the 'labels' described above. The lower extremity, and sometimes the other also, is cut at right angles so as to produce a flat square surface, but the bars usually taper above to a more or less wedge-shaped end. The graffito inscriptions are generally engraved on all four sides, which must probably be read consecutively. At times, as in

[1] For this sealing see above, p. 22. Its lower face, where the graffito inscription would have been, is broken away.

[2] Compare *J. H. S.*, vol. xxii, Pl. VIII. 57 A (p. 82, Fig. 16), and 58-61 ; Pl. IX. 89-91, &c.

the case of P. 102, they appear on only two sides. The flat bases of some of the bars are also inscribed.

Numbers are attached to many of the entries on these documents.

(*d*) *Clay bars or 'prisms' with a triangular section.* Only one fragmentary

a *b*

Fig. 96.

example of this class of inscribed bar has been preserved, P. 119. The remaining extremity of this was cut flat.

Tablets. (*e*) *Clay tablets of oblong form.*—Only one specimen of this type occurred in the

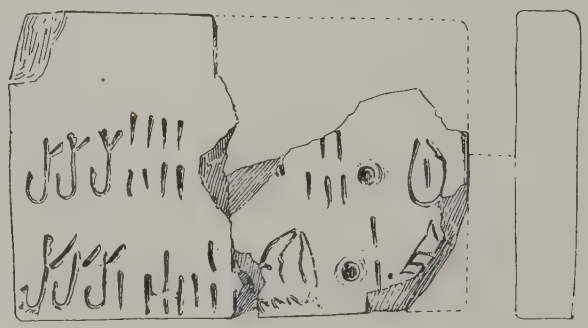


Fig. 97.

Hieroglyphic Deposit at Knossos (Fig. 97, P. 120), somewhat broken away at two corners. The inscription, accompanied by numbers, is only on one side.

Another clay tablet of the hieroglyphic class, somewhat more elongated than the Knossian example, was brought to light in the Palace at Phaestos (P. 121). Unfortunately the exact circumstances of its discovery cannot be ascertained.

II. § 7. CATALOGUE OF CONVENTIONALIZED PICTOGRAPHIC (OR HIEROGLYPHIC) INSCRIPTIONS ON SEALS AND SEALINGS

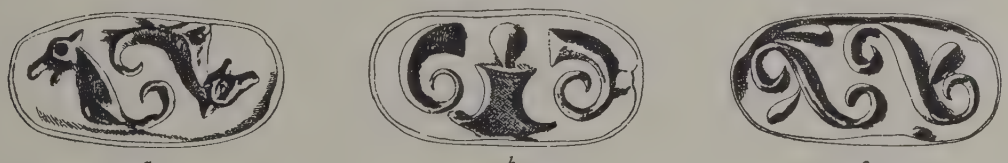
(The numbers of this series are preceded by P. C. P. = *Cretan Pictographs*, &c., 1895. F. D. = *Further Discoveries of Cretan Pictographs*, &c., 1898. The numbers in brackets refer to the Catalogue of Hieroglyphic Signs, § 9 below. The figures are enlarged two diameters.)

Class A.

a *b* *c*

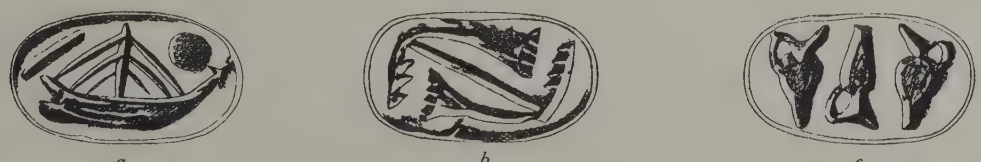
P. 1. Steatite prism. Central Crete. Impression obtained at Candia. The formula on *a* is of constant recurrence (pp. 265 seqq.). *b*. dog; *c*. spider. (Pl. I; F. D. Fig. 5.)

P. 2. Pale steatite prism. Lasethi. Cf. p. 129 above and Table XII, G. *c* is a decorative motive. (Pl. I.)



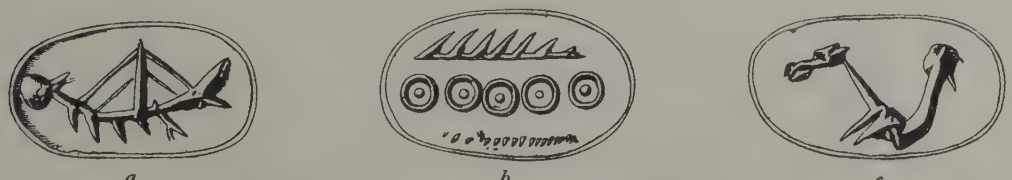
a *b* *c*

P. 3. Steatite prism. Crete: Copenhagen Museum. *a*. Two hippocamps. The trumpet-like scrolls on *b* are probably ornamental features as those on *c*. (Pl. I; F. D. Fig. 4.)



a *b* *c*

P. 4. Yellow steatite prism. Elunda (Olous). *b* is a decorative design derived from the 'double sickle' of the 'button-seals'. (See above, pp. 127, 128.) For the three vases on *c* cf. P. 5. (Pl. I; F. D. Fig. 3.)

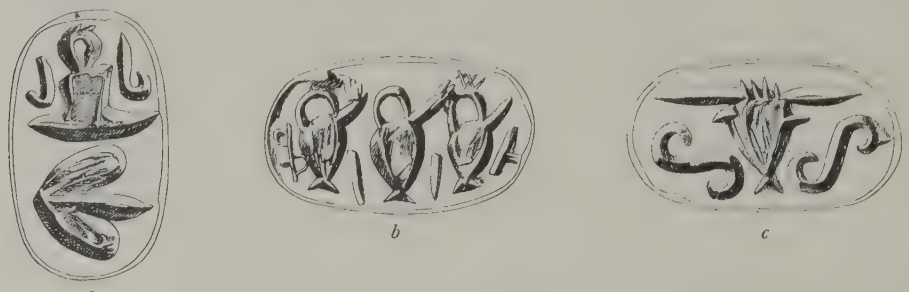


a *b* *c*

P. 4*. Steatite. Crete, uncertain locality. *c* may be the sea-horse as seen on P. 3 *a*. (C. P. Fig. 28.)

a *b* *c*

P. 4**. Black steatite. Mallia, Crete. There is no trace of any rigging on the aft part of the ship on *a*. *c* may represent the dog of P. 1 *b*. (F. D. Fig. 2.)



a *b* *c*

P. 5. Brown steatite prism. Crete. Bought in Candia (A. J. E.). For formula on *a* cf. P. 2, &c.; for *b* see P. 4. The two S-shaped scrolls on each side of the ox's head on *c* are probably ornamental. (Pl. I; C. P. Fig. 21.)

P. 6. Steatite prism. Candia Museum. *a*. The first character resembles the Egyptian 'Palace' sign. *b*. The second sign may be a blundered representation of the 'trowel' sign (No. 18). *c*. Heads of ox and two goats. (Pl. I.)

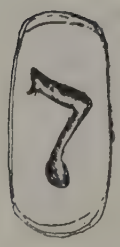
a *b* *c*

P. 7. Green steatite prism. Kritsà, East Crete (A. J. E.). The trumpet-like scroll on *a* is probably decorative, as also *c*. (Pl. I.)

P. 7*. Yellow steatite prism. Central Crete (A. J. E.). *a*. Leg and gate signs as P. 1; for this collocation see § 15 below. *b*. Head of horned sheep or moufflon. *c*. Two heads of ditto.

a *b* *c*

P. 8. White steatite prism. Praesos. (Pl. I; C. P. Fig. 29.)



a

b

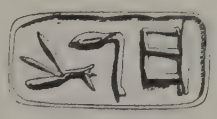
c

P. 8*. Grey steatite prism. From site of Knossos. Seen in 1894. (From a sketch.) (C. P. Fig. 30.) Much abraded. *a* appears to be the leg sign. As the lower part of *b* was much worn away the sign here may really have been Ψ, and in that case we should probably have the frequently recurring formula in which this sign is accompanied with the leg and the gate (see below, § 15). (C. P. Fig. 30.)

P. 9. Amethyst scarab. Dictaean Cave. (See above, p. 136.) The group represents the sun or star symbol, with curving rays (cf. P. 28 *b*, 8 *a*, 25 *c*, *d*), between two beaked vases (cf. P. 4 *b*, 5 *c*, and 10). (Pl. I and Fig. 79 above.)

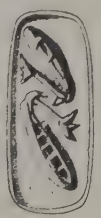
P. 10. Sealing from hoard found in House A, Kato Zakro. The coil to the right is probably decorative. (Pl. I.)

a



b

c



d

P. 11. Four-sided bead-seal, steatite. Central Museum, Athens. Face *b* contains the gate, leg, and Ψ formula; *c* and *d* are decorative. (Pl. I; C. P. Fig. 36.)

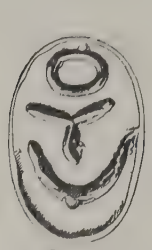
P. 12.

a *b*

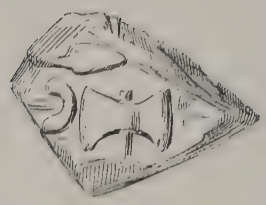
P. 13.

P. 12. Lentoid bead-seal of dark brown steatite, a good deal worn. From site of Knossos, 1904. The sign above to the left is possibly a bird. (Pl. I; C. P. Fig. 40.)

P. 13. Flat rectangular bead-seal, green steatite. Central Crete. On face *a* is an ox and a branch or tree. The sign to the left on face *b* seems to represent an ingot. (Cf. linear tablets, Vol. II.) (Pl. I; C. P. Fig. 37.)



P. 14.



P. 15.

P. 16.

P. 14. Natural 'finger' of yellow steatite, the base of which has been cut flat and engraved as a seal. Kalamafka, SE. Crete. The signs are of simple quasi-linear type. The oval above may be compared with the plain disk on P. 32 below. The second sign is perhaps an expanded version of the sepia sign (No. 60). The third sign possibly represents horns. (Pl. I; F. D. Fig. 22, pp. 348, 349.)

P. 15. Fragment of sealing. SE. Pillar Room, Knossos. The characters are of very primitive type, and the associated pottery belonged to the borders of the Early and Middle Minoan Periods. (See above, p. 19.)

P. 16. Clay sealing from the same early basement stratum of the SE. Pillar Room as the preceding. The first sign is the human leg.

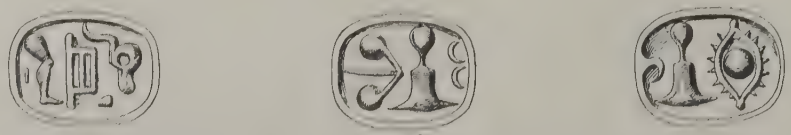
Class B.

a *b* *c*

P. 17. Green jasper prism. Siteia Province. The conjunction of the arrow-head (No. 13) and the 'trowel' (No. 18) is seen on a series of seals of both classes (P. 2 *a*, 5 *a*, 18 *b*, 19 *b*). Face *c* is decorative, showing the familiar palmette and spirals. (Pl. II; C. P. Fig. 22.)

a *b* *c*

P. 18. Reddish agate prism, with white streaks. Berlin Museum. Faces *a* and *b* repeat the signs of P. 17 *a* and *b*. For the formula on *c* see below, Table XXVI D. (Pl. II; C. P. Fig. 25.)



a *b* *c*

P. 19. Steatite prism. Museum, Candia. The 'trowel' and eye signs (Nos. 18 and 5) are also seen in conjunction on P. 7 *a*, 25 *d*, 27 *d*, and 33. (Pl. II.)

a *b* *c*

P. 20. Green jasper prism. Mirabello Province (A. J. E.). The sign in the left upper corner of face *b* seems to be an ox-head or bucranium, that below it an insect, perhaps an ant; that to the right of the leg sign an ear of corn. For the formula on face *c* see below, § 15. (Pl. II.)

a *b* *c*

P. 21. Red cornelian prism. Province of Siteia (A. J. E.). On face *a* the sign after the ox-head resembles a degenerate variety of the template (No. 19) as seen on P. 20 *c*. It might, however, be identified with the 'Horns of Consecration', or altar horns, so frequent in Minoan cult-scenes. The next sign is apparently a bird's head and neck. The two running animals on *b* are perhaps dogs. The ∧ which divides the heads on *c* may be compared with the sign (No. 84 *j*) between the lion's head and sepia on P. 34, and coupled with the sepia on P. 27 *c*. Cf. too P. 39. (C. P. Fig. 26; Pl. II.)

a *b* *c*

P. 22. White cornelian prism. E. Crete. The coupling of the gate sign (No. 44) with a pig on *a* seems to indicate some such title as 'Keeper of the Swine'. The animal on *b* is apparently a kid, and the axe sign with this ideograph above may refer to a sacrificial function. The scroll on *c* is probably ornamental. (C. P. Fig. 24; Pl. II.)

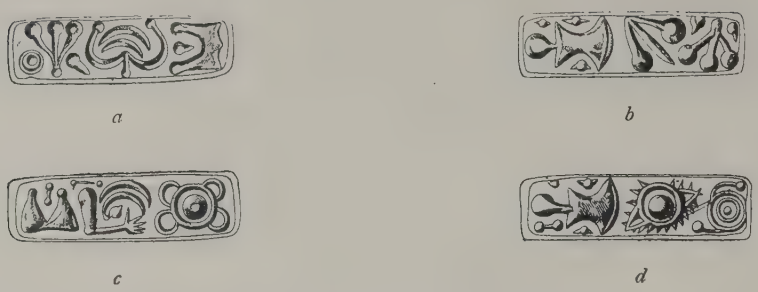
a *b* *c*

P. 23. Red cornelian prism. Central Crete, 1898. This remarkable seal may contain the name and titles of a Minoan prince, of whom the cat and snake were badges. It is fully discussed below, pp. 270 seqq. (Pl. II.)

a *b* *c*

P. 24. White cornelian prism. Eastern Crete. The second sign on *a* is the 'template' (No. 19) with a palmette such as was used for decorative designs contained in it. (See below, pp. 287, 288.) On *c* it is seen without the decorative adjunct. The 'trowel' (No. 18) and adze (No. 21) occur in the same conjunction on P. 23 *c* and 29 *b*. The × below the plane is the usual sign showing the beginning of a new hieroglyphic sign-group, and recurs on *c*. (C. P. Fig. 23; Pl. II.)

The inscription seems to run in a *boustrophedon* fashion. (See p. 252 below.)



a *b* *c* *d*

P. 25. Four-sided bead-seal of green steatite. Palaikastro, E. Crete, 1894 (A. J. E.).

The group on *a* is the recurring formula, probably a title, seen on 18 *c*, 20 *c*, 23 *b*, and 30 *d*. The third sign on *b* is ⅄ (No. 92). The collocation of the 'trowel' (No. 18) and the arrow-head on this face is also recurrent. For the 'trowel' and eye conjoined on *d* cf. P. 7 *a*, 27 *d*, and 33. It is possible that the signs to the left of *c* and *d* are variations of the rayed solar symbol (No. 107). The first sign on *c* seems to be indicative of 'mountains' or 'country' (No. 114), in which case the following signs may indicate a geographical name. Whether the double crescent on this face and *a* is a sign or a fill-up ornament is difficult to determine. (C. P. Fig. 35; Pl. II.)

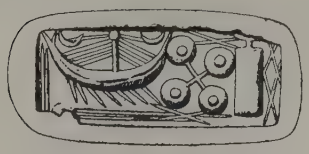
a *b* *c* *d*

P. 26. Four-sided bead-seal of abnormal length, white steatite. From Crete. Central Museum, Athens. Sides *a* and *c* are slightly larger than the other two. The X on faces *a*, *c*, *d*, and of which a trace seems to exist at the beginning of *b*, is the usual initial mark on the hieroglyphic class of inscriptions. (See below, p. 251.) The large X on face *a* probably marks the beginning of the inscription, so that *a* would read from left to right. Face *b*, as is shown by the goat's head, reads from right to left. Face *c* also runs from left to right. It begins with an X sign which almost runs into the figure below. The initial X on *d* also shows that it runs in the same direction. There here seems to be no fixed rule.

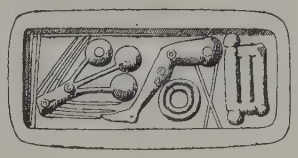
This seal is specially distinguished by the repetitions of the tree sign (No. 97) and of the plough (No. 27). The ship and trees seem to point to oversea traffic in timber. The recurrence of the mountains or regional sign (No. 114 placed on end) on face *b*, preceded and in the latter case also followed by two ploughs, is noteworthy. In the first case the ploughs are preceded by a mallet (No. 24) and goat's head, so that the mountains sign may be a determinative for the whole group. This conclusion is confirmed by the fact that on P. 29 *d* the mountains sign is again accompanied by the mallet and plough. It looks as if we have here a geographical formula.

The fourth sign on *c* is rather the breast sign (No. 4) than the 'mountains'. (See F. D. p. 337, and Fig. 7.[1]) (Pl. II.)

[1] As there pointed out, an imperfect figure of this seal (erroneously described as of ivory) was given as far back as 1872 by Dumont, *Inscriptions céramiques de la Grèce*, pp. 415, 416. It was there compared to gladiatorial tesserae; the repeated plough sign was interpreted as pairs of wrestlers, the goat's head compared to an *aplustre*, and the ship was taken as an allusion to the naval sham-fights in the amphitheatre.



a



b

c

a

P. 27. Four-sided bead-seal of yellow chalcedony. From Crete. In Berlin Museum Cat. (No. 56). This seal is of fine execution, and displays a decorative treatment of the signs. If the ship ideograph be taken as the beginning of the inscription a *boustrophedon* arrangement of the sides may be made out, viz. *a*, left to right; *b*, right to left; *c*, as shown by the position of the saw sign (No. 23), right to left; *d*, left to right. Face *b* shows the usual Ψ, leg and gate group with the insertion of the double disk and initial X mark between the leg and gate. We have here an indication that the gate sign could be used as a separate ideograph. The conjunction of the sepia and Z signs on *c* recurs on P. 34. In *d* we again see the eye and 'trowel' together. (C. P. Fig. 34; Pl. II.)

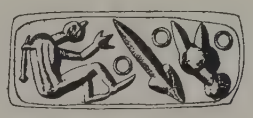
a

b

c

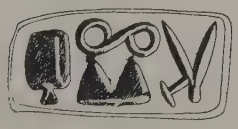
d

P. 28. Four-sided bead-seal. Crete. Central Museum, Athens. The conjunction of the 'trowel' and arrow-head, as seen on *d*, is frequent. The first sign on *c* appears to be a dagger (No. 15). (C. P. Fig. 33; Pl. II.)

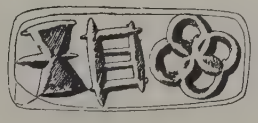


a

b



c



d

P. 29. Four-sided bead-seal. Siteia. The seated figure at the beginning of *a* recalls the ideographs of persons on Egyptian scarabs, and the spear or javelin sign (No. 14) and head of horned animal, apparently a goat, may indicate the personal name. The spider, perhaps referring to the spinning industry, already appears as an ideograph on the more primitive class of seals. The 'trowel' and plane (No. 21) which follow it appear together in a highly decorative setting on P. 23 *c*, where they probably represent an official title. The conjunction of the sacred double-axe symbol (No. 36) with the gate sign of guardianship on face *d* suggests that the owner of the seal performed a religious function. (F. D. Fig. 6; Pl. II.)

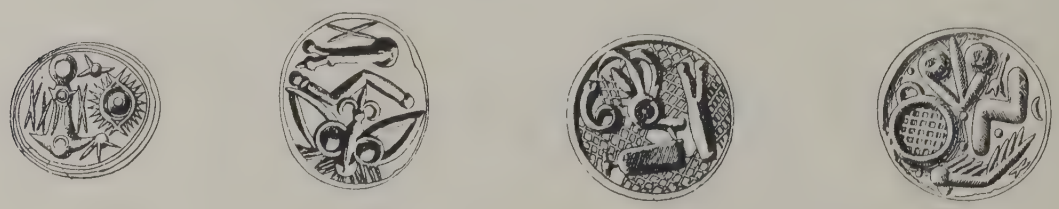
a *b* *c* *d*

P. 30. Four-sided bead-seal of green jasper. From Xidhà, near site of Lyttos. Face *a* shows the familiar Ψ, leg and gate formula. The heads on *b* and *c* perhaps represent calves. The two figures to the right of *c*, separated by the X mark from the calf's head, resemble a tablet suspended from a bent rod or reed. The formula on *d* is associated with that on *a* in P. 18, 20, and 23. (Pl. II.)

a *b* *c*

P. 31. Globular prism of dark-green jasper. Crete (Berlin Cat. No. 58). Face *a* shows a dove pluming its wing. The sign group on *b* is of special interest from its recurrence in a graffito formula on the clay bar (P. 117 *a* below). The flower on *c* with the long stamens is possibly a saffron crocus. (Pl. II ; C. P. Fig. 31.)

P. 32. Chalcedony bead-seal with back in the form of two fore-parts of lions in reversed positions. (See above, p. 139, Fig. 81.) Mirabello Province. For the X compare P. 26 *d* and 27 *a*, *c*. The O may be a simplified form of the concentric disks on P. 27 *b*. See too the oval sign on P. 14. (Pl. II.)



P. 33. P. 34. P. 38. P. 39.

P. 33. White cornelian bead-seal with convoluted back. (See above, p. 140, Fig. 82.) Eastern Crete. The 'trowel' and eye formula is of frequent recurrence. (P. 7 *a*, 19 *c*, 25 *d*, 27 *d*, with arrow-head.) (C. P. Fig. 38 ; Pl. II.)

P. 34. Chalcedony bead-seal with convoluted back as preceding. Gortyna. (See above, p. 140, Fig. 83.) The two uppermost signs (Nos. 60 and 84) are also grouped together on P. 27 *c*. The sign below seems to be a lion's head with a fleur-de-lis crest. (Pl. II ; F. D. Fig. 9.)

P. 35. Red cornelian bead-seal of the same type as P. 33 and 34. An owl with scrolls on each side of its head (horns) above another object, perhaps a fleur-de-lis spray, as P. 37 below. (Pl. II.)

P. 36. Green jasper 'signet' (for upper side see p. 140, Fig. 84). Goulas. The animal is of the cat-like kind introduced as the principal type of P. 23 *a*. It stands probably in both cases as the ideographic badge of a king or high official. (Pl. II.)

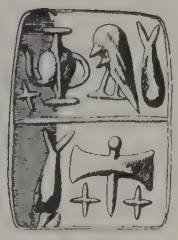
P. 37. Green jasper 'signet'. Knossos, 1898. We have here a more perfect example of the figure seen on P. 35, a horned owl in this case above a fleur-de-lis spray. (Pl. II.)

P. 38. Green jasper 'signet'. Sto Dháso, near Zyro, Eastern Crete (A. J. E. See above, p. 140, Fig. 85). It has already been noted that the mallet and goat's head appear with the plough and mountains sign on P. 26 *b*, perhaps as part of a geographical formula. (Pl. II ; F. D. Fig. 11.)

P. 39. White cornelian 'signet'. Kalochorio, near Kritsà (A. J. E.). The 'strainer' (No. 54) and arrow-head sign are also found together on P. 30 *b*. (Pl. II.)

P. 40.

P. 40*.



P. 41 *b*.

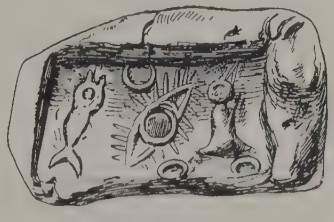
P. 40. Red cornelian signet. Kentri, near Hierapetra.. (See Fig. 86, p. 141.) The wolf's or dog's head with the tongue protruding, which here stands as an ideograph by itself, appears on P. 24 *a*, with the 'trowel' and 'template' signs, apparently representing a title. (Pl. II.)

P. 40*. Red cornelian signet. Central Crete. It shows the star sign of eight rays within circle with floral offshoots.

P. 41. Rectangular bead-seal. On face *a* is a pictorial design representing a wild goat pursued by a hound. The first sign to the left in the upper compartment of *b* is a form of spouted vase common on late Minoan intaglios. The second is apparently a bird. The two small crosses on either side of the double axe in the lower compartment seem to show that it stands as an ideograph by itself. (Pl. II; C. P. Fig. 39.)

P. 42.

P. 43.



P. 45.

a *b* *c* *d*

P. 44.

P. 42. Green jasper with convoluted back (as P. 33–35). Hagios Nikolaos, Gulf of Mirabello. From a sketch.

P. 43. Stamp of circular seal of which two examples were found impressed on cup handles at Palaikastro.

P. 44. Four-sided bead-seal, red cornelian. Central Crete (Ashmolean Museum). There is a cruciform sign of division between the wolf's or dog's head of *a* and the lower characters. The first of these (No. 16) seems to be a forearm holding a curved instrument. On face *b* is the recurring conjunction of the 'trowel' and arrow-head. The lowermost signs of *c* are a handled vase (No. 47) and perhaps the bird's head and neck (No. 83). From its association with the mallet the second sign on *d* may be the 'mountains' (No. 114), in which case we have a parallel to the probably geographical formulae of P. 26 *b* and 29 *c*. It seems to be followed by a floral sign. (C. P. Fig. 33.) The stone was procured at Athens by Mr. Greville Chester, and wrongly labelled by him as from Sparta. The impression of the seal, however, was seen by me in 1894 in the hands of its original possessor at Candia. (See p. 10 above.)

P. 45. Impression on clay sealing from the hoard found in House A, Kato Zakro. The fish is probably the same as that on P. 28 *a*, and may be identified with a tunny. For the conjunction of the eye and 'trowel' cf. P. 19 *c*, 25 *d*, 27 *d*, 33 *d*.

a *b* *c*

P. 46. Green jasper prism-seal from Kordakia near Kavousi. (From sketch by A. J. E.) Sides *b* and *c* are the same except that the 'tree' sign (No. 97) is inserted between the 'arrow' and 'trowel' formula.

a *b* *c*

P. 47. Cornelian. Mirabello Province. (Now in the Fitzwilliam Museum at Cambridge.[1]) Sides *a* and *b* show the same collocation of a lance with what looks like a cane shaft (see No. 14 *d* below) and the human eye.

a *b* *c*

P. 48. Green jasper. Mirabello Province. (Fitzwilliam Museum.) *a* shows the leg and gate, followed by a two-handled vessel. The incomplete characters on *b* are the 'trowel' and adze. For this group following the other compare P. 23 *a*, *c*.

a *b*

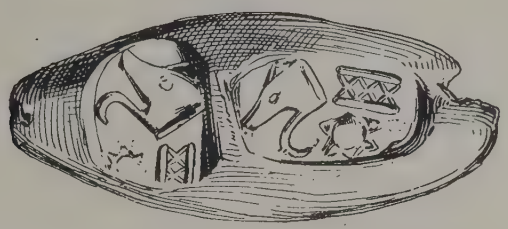
P. 49. Perforated disk of brown steatite, with two almost flat faces. Found at Hellenika, Knossos. On face *a*, within incised circle, double axe, sepia (No. 60), and a bifoliate figure. On face *b*, also within incised circle, spray (No. 100), sepia, the 'hand' sign in profile (No. 10), and spouted ewer (No. 47).
From its material and rude style this might preferably be included in Class A.

[1] The kindness of the Director has enabled me to reproduce this seal.

a *b* *c*

P. 49*. White cornelian prism. Mirabello Province: in the possession of Mr. R. Seager. Face *a* shows the familiar gate, leg, and ϒ formula, and face *b* the 'eye' and trowel. Face *c* shows the only glyptic example hitherto known of the curious sign No. 116, looking somewhat like the fore-part of a vessel with two or three masts, of which several graffito varieties appear.

Nos. 50–75 are all sealings from the Hieroglyphic Deposit of the Palace, Knossos. (See above, § 6.)



P. 50 *a*. Impressions of suboval seal, probably prism. The sign to the left seems to be the fore-part of a boar. That below is a rayed disk or star. (Pl. III.)

P. 51 *a*.

P. 51 *b*.

P. 51 *a*. Impression, probably of prism-seal. The insect to the right appears to be a bee (No. 86). The animal's head is that of a calf. The sign beneath it (No. 122) is coupled on P. 28 *b* with a goat's head. (Pl. III.)

P. 51 *b*. Impression, probably of prism-seal. The first sign to the left appears to represent a water-fowl in the act of taking wing. Then follow the mallet and arrow-head.

P. 54 *a*. 1. P. 54 *a*. 2.

P. 54 *a*. 1. Impression of prism- or four-sided bead-seal. The 'club' sign here separates the 'trowel' and eye. The scroll is perhaps a decorative adjunct. (Pl. III.)

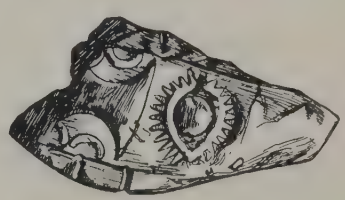
P. 54 *a*. 2. Impression of prism- or four-sided seal. This again shows the 'trowel' and eye, but between them is the calf's head (No. 64). (Pl. III.)

P. 56 *a*. P. 59 *a*. 1, 2.

P. 56 *a*. Part of the impression of a prism-seal. This shows the 'mouth' sign (No. 6) coupled with the same 'trowel' and eye formula. (Pl. III.)

P. 58 *a*. 'Trowel' and double axe. (Pl. III.)

P. 59 *a*. 1 and 2. Repetitions of the same impression, probably from a prism-seal. For the formula compare P. 29 *d*: gate, double-axe, and cruciform figure. (Pl. III.)



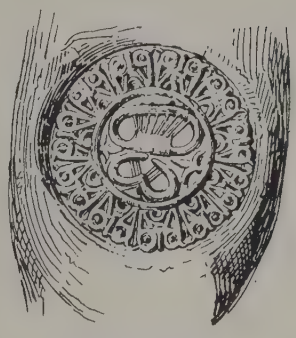
P. 60 *a*. P. 61 *a*.

P. 60 *a*. Impression, probably of a prism-seal. The sign on the right seems to be an ear of corn. (Pl. III.)

P. 61 *a*. Part of an impression from a prism-seal, showing the eye and the lower part of the 'trowel' sign. (Pl. III.)

P. 62 *a*. Impression of signet, showing double-axe sign. (Pl. III.)

P. 63 *a*. 1, 2.



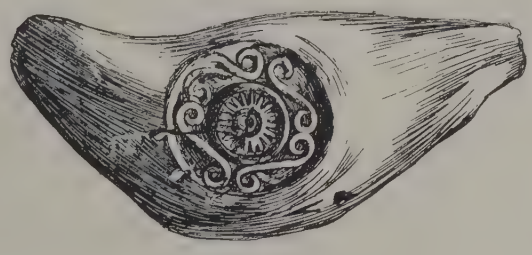
P. 64 *a*. 1, 2.

P. 63 *a*. 1. Impression of signet showing ship, the initial X mark, and the branch sign (No. 101), probably of an olive-tree, repeated. (Pl. III.)

P. 63 *a*. 2. Impression, probably of four-sided bead-seal. (Pl. III.)

P. 64 *a*. 1 and 2. Two impressions of the same 'signet', probably of metal. (See pp. 142, 146 above.) It shows the harp sign and No. 30, accompanied by two flowers, within a highly decorative border. For the sealing see above, p. 145, Fig. 90. (Pl. III.)

P. 66 *a* and 67 *a*.



P. 68 *a*.

P. 66 *a* and 67 *a*. Impressions from the same face of a four-sided bead-seal. The uppermost sign possibly represents a rump. That next to it below seems to be an animal's head. (Pl. III.)

P. 68 *a*. Impression of a signet, showing the rayed disk sign surrounded by a border with decorative scrolls. (Pl. III.)

P. 69 *a*. 1, 2.

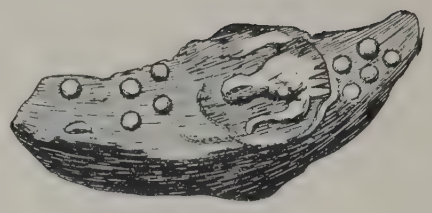
P. 70 *a*.

P. 69 *a*. 1. Impression, probably of four-sided bead-seal. The first device to the left appears to be a decorative scroll. The middle sign is the 'sieve' (No. 54); cf. P. 26 *d*, 30 *b*, and 39. (Pl. III.)

P. 69 *a*. 2. Part of impression, probably another face of same seal showing J sign (No. 32) and eye. (Pl. III.)

P. 70 *a*. Impression of 'signet' seal, showing the double-axe sign. (Pl. III.)

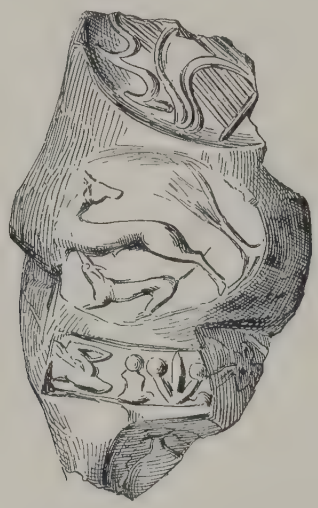
P. 71 *a*. 1, 2



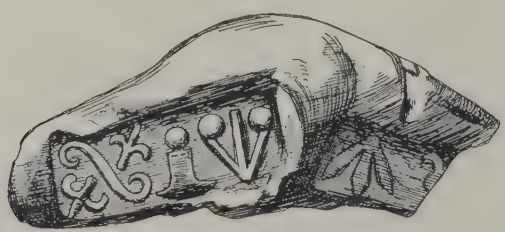
P. 72 *a*.

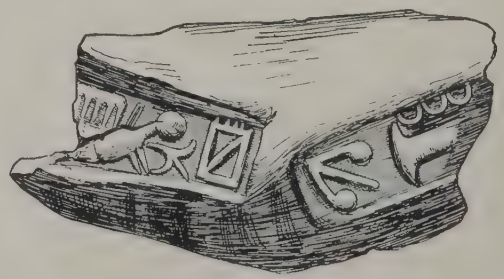
P. 71 *a*. 1. Impression of a prism- or four-sided bead-seal with the recurring Ψ, leg and gate formula. P. 71 *a*. 2. Impression of signet showing beardless male head with curly hair and aquiline nose. For this interesting sealing, presenting apparently a portrait of a Minoan dynast, together with an official title, see below, p. 272. (Pl. III.)

P. 72 *a*. Impression of signet-seal with head of horned sheep or moufflon. For this sign, thrice repeated, see above, P. 7*. At the two extremities of the field are groups of dots, seven and five in number respectively. (Pl. III.)



P. 73 *a*. (See above, Fig. 93, p. 146.) 1. Signet type of decorative character. 2. Hunting scene; wild goat chased by hound: from a lentoid gem. 3. Impression of prism- or four-sided seal. The first sign appears to be the dog's or wolf's head. It is followed by the usual conjunction of the 'trowel' and arrow-head. There is also, 4, part of the impression, probably of a signet-ring, with a cult scene, and, 5, a fragment of another seal-impression representing an uncertain object.





P. 74 *a*. 1. Impression apparently of prism-seal. The S-shaped scroll and flowers to the left are probably ornamental adjuncts. For the 'trowel' and arrow-head formula see above, P. 17 *b*, 18 *b*, 19 *b*, 25 *b*. (Pl. III.)

P 74 *a*. 2. Arrow sign and part of another.

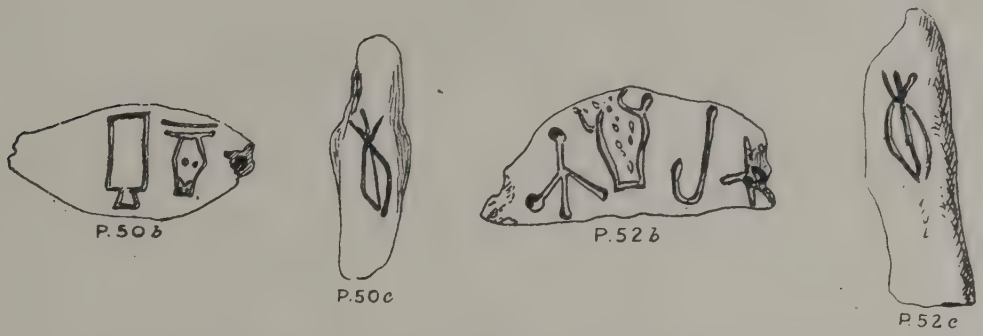
P. 75 *a*. 1. Part of impression of face of prism- or four-sided seal. The character to the right is the 'Palace' sign, and next to it the 'bee'. (Pl. III.)

P. 75 *a*. 2. Part of impression of similar seal with arrow sign and 'trowel'. (Pl. III.)

II. § 8. CATALOGUE OF CONVENTIONALIZED PICTOGRAPHIC (OR HIEROGLYPHIC) INSCRIPTIONS ON CLAY SEALINGS, TABLETS, BARS, AND LABELS.

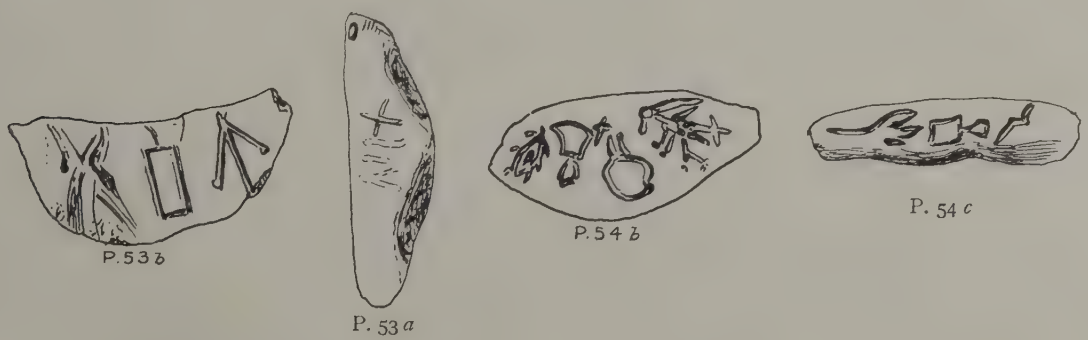
(The numbers of this series are preceded by P. The numbers in brackets refer to the Catalogue of Hieroglyphic Signs, pp. 181 seqq. For general observations on the marks governing the direction of these inscriptions see below, § 12, and for the numeration, § 13. The copies of the inscriptions are from tracings of photographic copies, made by the author and corrected from the originals. They are slightly reduced in the process.)

1. Graffito Inscriptions on Clay Sealings.



P. 50 *b*. At the right extremity are the remains of a cross, marking the beginning of the inscription. *c*. This sign (No. 94), 'the corn-grain in flower,' frequently stands by itself on the small side of a sealing. It recurs with other vegetable signs on the Phaestos tablet (P. 121). (Pl. IVA, IVB.)

P. 52 *b*. The second sign seems to represent a jar containing grain (No. 50). The J or 'crook' sign (No. 32) occurs on the four-sided seal P. 26 *d* in conjunction with the 'plough' (No. 27). In that case it is preceded by X as the sign of the beginning of the line. Here the X seems, as generally the case, to have the same significance, and the reversed position of the sign itself shows that the group here reads from right to left. (Pl. IVA.)



P. 53 *b*. The first sign here seems to be an animal's head with sharp ears, perhaps a kid. The second sign is the mallet (No. 24), which on P. 38 is seen in association with a goat's head. P. 53 *a*. The initial X, followed by two linear signs like I N. (Pl. IVA, IVB.)

P. 54 *b*. The insect to the right is probably the same as that on the seal-types P. 51 *a* and 75 *a*, where it seems to stand for a bee. It is preceded by X as a mark of the beginning of the inscription. The sign with which it is coupled may be the 'strainer' (No. 54). A second X separates the first group from the 'trowel' and eye formula that follows. P. 54 *c*. This face is imperfect. It shows the 'mallet' and part of the 'saffron' sign. (Pl. IVA, IVB.)

P. 55 *b*. The inscription has the initial sign X, and reads from left to right. (Pl. IVA.)

P. 56 *b*. The 'sieve' or 'strainer' sign (No. 54). (Pl. IVA.)

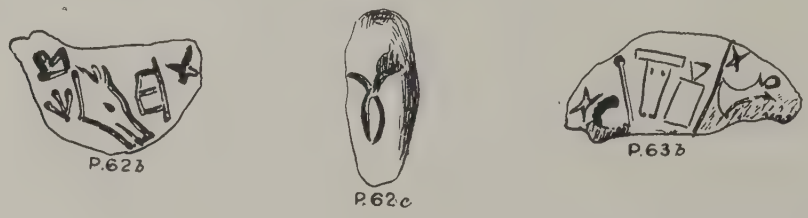
P. 57 *b*. This sign (No. 88) apparently represents a 'saffron' flower. (Pl. IVA.)

P. 58 *b*. About half of the sealing preserved. On another side is part of an . (Pl. IVA.)

P. 59 *b*. The first sign to the left (No. 106) does not occur elsewhere. The imperfect sign on the right is the arrow-head (No. 13). (Pl. IVA.)

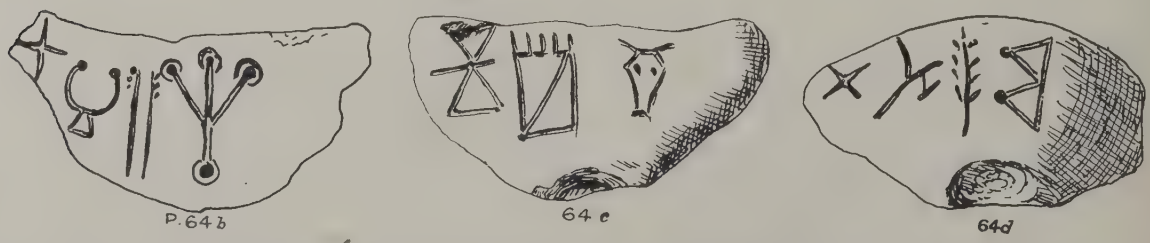
P. 60 *b*. This group, again, begins with the X mark and reads from left to right. (Pl. IVA.)

P. 61 *b*. The first sign may be the 'gate' (No. 44). On P. 61 *c* the Δ sign follows the initial X. (Pl. IVA, IVB.)

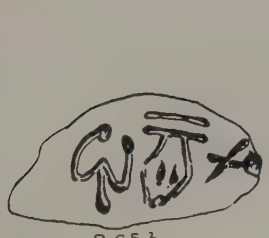


P. 62 *b*. The sign in the left corner (No. 123) is of enigmatic meaning. The animal's head is that of a pig. A complete figure of a pig is accompanied by the gate sign on P. 22 *a*. P. 62 *c*. The 'flowering grain' sign (No. 94) which so frequently occurs in a solitary position on these sealings. (Pl. IVA, IVB.)

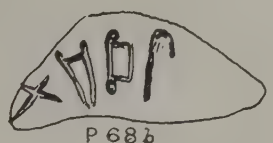
P. 63 *b*. The field is here divided by cross-lines into three sections. The first in order seems to be that distinguished by the initial X and the crescent sign. The 'eye' probably succeeded the 'trowel' in the third section. (Pl. IVA.)



P. 64. This is the largest of all the clay sealings found in the Knossian Palace (see above, p. 145) and is distinguished by the very fine signet impression exhibiting a lyre (P. 64 *a*). All the inscriptions on the sides, in each case consisting of three signs, seem to read from left to right. The second sign on *b* is only found here. On *c* we have the interesting collocation of the double axe ('labrys') and Palace sign followed by a bull's or ox's head. The group on *d* contains the 'mountains' or regional sign and the 'plough', which are associated elsewhere. We are tempted to see in *b* a personal name, in *c* an official title, and in *d* the name of the country. (Pl. IVA, IVB.)


P. 65 *b*

65.*c*


P 68 *b*

P. 69 *b*

P. 65 *b* and *c*. For the 'flowering grain' sign (No. 94) on *c*, which frequently stands by itselt on the small side of the sealing, see above, P. 50 *c*, 52 *c*, and 62 *c*. (Pl. IVA.)

P. 68 *b*. In accordance with the initial X the signs read from left to right. The third sign appears here with its crook above instead of below as on P. 52 *b*. Such changes in the positions of these signs are however frequent. For a similar collocation of this and the 'gate' sign cf. P. 110 *e*. (Pl. IVA.)

P. 69 *b*. The arrow sign repeated after the initial X. This inscription reads from right to left. (Pl. IVA.)

P. 70 *b*

70 *c*

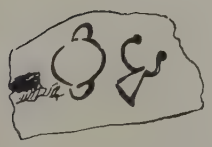
P. 72 *b*

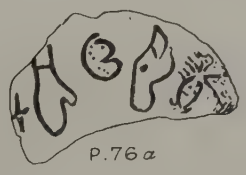
P. 74 *b*

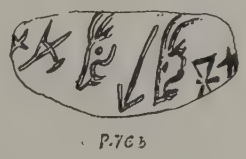
P. 70 *b*, *c*. The first sign on *b* resembles a form common to the two linear classes, but which, in the hieroglyphic series, only occurs on the present sealing. The second sign is also peculiar to this inscription. The incomplete character on *c* apparently represents a form of the Egyptian *Ankh*. A similar sign occupies the field of a lentoid bead-seal of black steatite found in Central Crete. (Pl. IVA, IVB.)

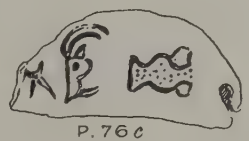
P. 72 *b*. Only the 'gate' sign can be clearly made out on this sealing. (Pl. IVA.)

P. 74 *b*. The sign on this sealing (No. 116) reappears below on the clay bars Nos. 113 *b*, 114 *b*. (Pl. IVA.)


P. 75 *b*


P. 76 *a*


P. 76 *b*

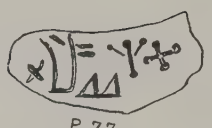

P. 76 *c*

P. 75 *b*. The first sign here seems to be the same as the 'strainer' (No. 54) but with two handles. (Pl. IVA.)

P. 76 *a*, *b*, *c*. This example is exceptional in presenting no seal-impression. It has all three sides inscribed with graffito inscriptions. The sign to the left of *a*, after the initial mark, appears to be a glove. It is suggested below (v. Catalogue of Signs, No. 9) that this may have been an article required by bee-keepers. In this case the insect to the right of the group is probably a bee. The sealing may have secured a store of honey.

The inscription on face *b* reads from right to left, as is shown by the direction of the double axe and the goat's head. An X appears both at beginning and end. For this group cf. P. 93 *a* and 108 *a*.

The sign to the right of *c* is the same as that on P. 52 *b* and also appears on the clay bars and labels. It may be a jar containing grain, or possibly honey, seen in section. (See Catalogue, No. 50.) (Pl. IVB.)


P. 77

P. 78 *a*

P. 78 *b*

P. 77. There is no seal-impression and no other sign-group on this clay sealing. The first sign on the left seems to be a variant of one that appears on the clay label below. (See Catalogue, No. 49.) (Pl. IVB.)

P. 78 *a*, *b*. The goat's head appears on both faces. (Pl. IVB.)

2. Graffito Inscriptions on Clay Labels.

P. 80 *a*

P. 80 *b*

P. 81 *a*

P. 81 *b*

P. 80 *a*. The initial sign X shows that this reads from left to right. A second X after the first group of three signs separates it from a second group consisting of two. (Pl. V.)

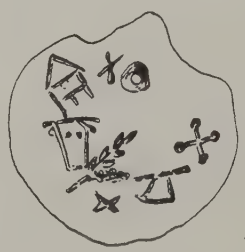
P. 80 *b*. The field is divided into two separate sections by a vertical line. That to the left shows the common 'trowel' and arrow-head formula followed by two units. On the right are two signs, the ♆ (No. 92) and a variant of the two-branched figure (No. 103), which only appears here. They are accompanied by numbers. (Pl. VI.)

P. 81 *a*. A roughly executed group consisting of the arrow-head, plough, and apparently a saffron flower. (Pl. V.)

P. 81 *b* shows another plant sign. (Pl. VI.)

P. 82 *a*

P. 82 *b*


P. 83 *a*

P. 83 *b*

P. 82 *a*. The first sign is unique. It is followed by the common leg and gate formula (the leg seen foot upwards). (Pl. V.)

P. 82 *b*. 'Flowering grain' (No. 94) followed by three strokes, probably units. (Pl. VI.)

P. 83 *a*. This reads from left to right. After the initial X is a shed on piles, probably a storehouse, followed by the ox-head and branch. The first sign in the second group, prefaced by another initial X, is possibly a degenerate form of the single axe. (See No. 12 *b*, *c*.) It is followed here and on P. 86 *b* below by the 'cross' (No. 112). (Pl. VI.)

P. 83 *b*. The field here, as on P. 80 *b* above, is divided by a vertical line into two sections. In this case, too, as in the other, the first contains the 'trowel' and arrow-head group followed by numbers. In the second section are the 'tree' (No. 97) and 'gate' signs, with four pellets. (Pl. V.)

P. 84 *a*

P. 84 *b*

P. 84 *a*. Slightly broken. The 'angle' sign and 'double axe' in conjunction recur on the bar P. 104 *c*. They are followed by four dots. (Pl. V.)

P. 84 *b*. For the double ⸗ and 'double-axe' conjunction see P. 108 *a*. (Pl. VI.)

P. 85 *a*

P. 85 *b*

P. 85 *a*. The field is marked off into an upper and lower division by a horizontal line, and the lower part is again divided by a cross-line into two sections. The upper division shows a remarkable collocation of the human arm, leg, and crossed arms followed by the saffron flower (No. 88). In the section to the left, below, is the branch sign and leg. In that to the right is what appears to be a linearized version of a two-branched spray (No. 104), followed by the arrow. (Pl. V.)

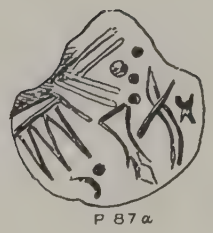
P. 85 *b*. This again is divided into an upper and lower section. In the upper part the 'strainer' sign (No. 54) is twice repeated, and is followed, as on P. 26 *d*, by the 'cross'. In the lower division is the 'flowering corn-grain', followed by numbers (= 32). (Pl. VI.)

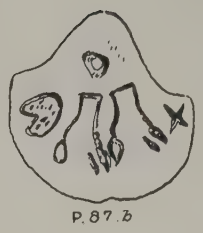
P. 86 *a*

P. 86 *b*

P. 86 *a*. This reads from left to right, and is divided into two groups, in each case preceded by an initial X. The double-axe and dog's head signs that begin the inscription may possibly convey the name or title of an official. In the second group the plough and 'saffron' sign (No. 88) are followed by an enigmatic character (No. 17), possibly a knife in a sheath. (Pl. VI.)

P. 86 *b*. The inscription, which also reads from left to right, is divided by the X marks into three groups. The second character of the first group is possibly a flower (No. 89). For the second group, 'single axe' and 'cross', see above, P. 83 *a*. The third group begins with the bee sign (No. 86). (Pl. V.)


P 87 *a*

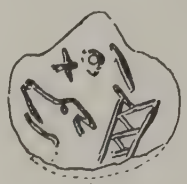

P. 87 *b*

P. 87 *a*. This, as is shown by the initial X, reads from right to left. The first sign (No. 116), somewhat resembling a three-masted ship, recurs on the clay bar P. 111 *c* and the prism-seal P. 49 *c*. It is followed by the 'trowel' and numbers. The angle sign (No. 42) recurs on P. 17 *a* and on the clay bars. (Pl. V.)

P. 87 *b*. This also reads from right to left as seen in its present position. The sign, twice repeated, with which the group begins (No. 49) is shown to be related to the 'grain-jar' sign (No. 50). It is, however, placed upside down, so that the 'label' was probably inscribed with the perforation held below. The writing in that case really runs from left to right. The kidney-shaped figure (No. 93) recurs on the sealing on another label P. 93 *b*, and on the bar P. 111 *a*. The suggestion is made below (see Catalogue, No. 93) that this figure may represent the silphium seed. (Pl. VI.)

P 88 *a*

P 88 *b*


P 89 *a*

P 89 *b*

P. 88 *a*. The second sign is probably the plough. (Pl. V.)

P. 88 *b*. This character (No. 128 *b*) is common to the linear scripts. (Pl. VI.)

P. 89 *a*. The sign to the right here is the 'fence' (No. 46). The fore-quarter of a boar or pig is combined with the fence on P. 50 *a*, and it is possible that here too the animal depicted is a pig.

P. 89 *b*. This group is written the reverse way: recurs on the four-sided bars P. 103 *d* and 109 *a*, and on the three-sided bar P. 118 *a*, *b*, *c*. The second sign is the 'grain-jar' (No. 50), here badly drawn. (Pl. VI.)

P. 90 *a*

P 90 *b*

P 91 *a*

P. 91 *b*

P. 90 *a*. For the collocation of the first two signs see above, P. 89 *b*. The animal's head is uncertain. (Pl. VI.)

P. 90 *b*. For the Δ sign see above, P. 80 *a* and the sealing P. 61 *c*. This group recurs on the bar P. 114 *c* and *d*. It is followed by a dot = 10. (Pl. V.)

P. 91 *a*. The initial mark X shows that the group begins with the ox-head. The second sign, which is imperfectly preserved, must be identified with the leafy spray that follows the 'bee' on P. 86 *b*. (Pl. V.)

P. 91 *b*. The Ψ sign is here coupled with the 'crescent'. (Pl. VI.)

P 92 *a*

P. 92 *b*

P 93 *a*

P. 93 *b*

P. 92 *a*. The inscription, beginning from the initial X, reads from right to left. It is followed by numbers (= 32). The first sign (No. 20) only occurs in this place. The fourth sign is possibly a variant of the 'crouched' man sign (see Catalogue, under No. 2). (Pl. V.)

P. 92 *b*. The first sign here (No. 115) is enigmatic. The second and third signs must obviously be completed as the 'strainer' (No. 54) and the 'Palace' sign (No. 41). (Pl. VI.)

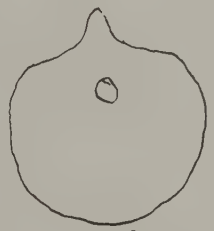
P. 93 *a*. In spite of the direction of the goat's head this inscription must be taken to read from left to right. It is divided, as the initial marks show, into two sign-groups, followed by numbers (= 11). The 'plough', animal's head (here clearly a goat's), and arrow recur in P. 76 *b* and 108 *a*. The 'plough', goat's head, and complete arrow are grouped on P. 76 *b*. The succeeding combination of the 'plough' and the 'dotted chevron' (No. 115) recurs on the bar P. 109 *d*. (Pl. V.)

P. 93 *b*. This also reads from left to right. The first sign seems to be a variant of the 'sepia', the second is the 'silphium seed', and the third the 'olive spray' (No. 101). (Pl. VI.)

P. 94 *a*

P. 94 *b*

P 95 *a*


P 95 *b*

P. 94 *a*. This inscription again, notwithstanding the direction of the goat's head, must be taken to read from left to right. It consists of two sign-groups. The conjunction of the arrow and goat's head recurs on the sealing P. 79 *b*.

P. 94 *b*. The ⅋ and 'strainer' appear together on the 'signet' P. 39.

P. 95 *a*. The characters on this label are very roughly incised. (Pl. V.) The other side of the label is plain. (Pl. VI.)

P 96 *a*

P 96 *b*

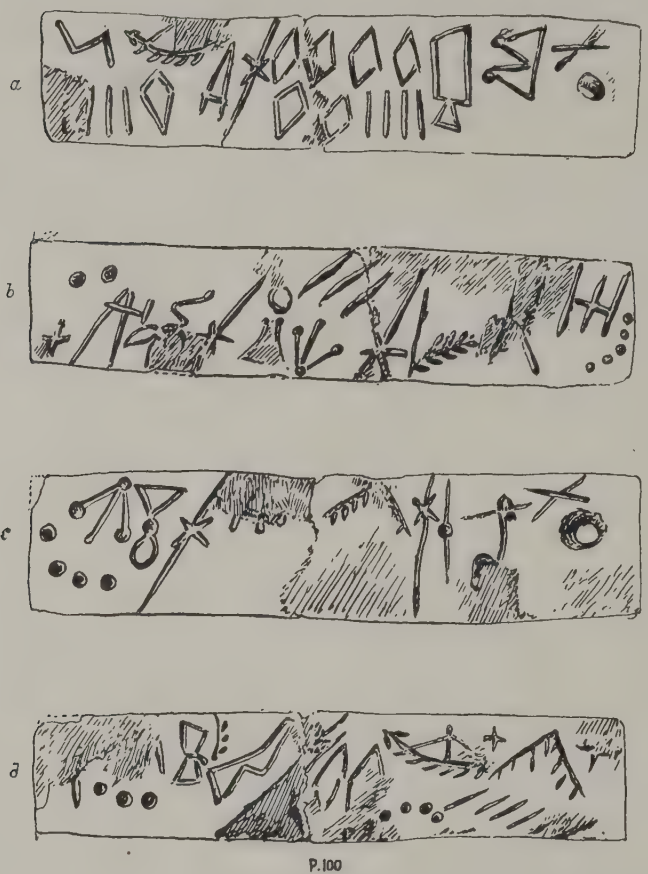
P 97 *a*

P 97 *b*

P. 96 *a*. The 'mountains' or regional sign (No. 114) and the 'mallet' (No. 24) are seen together in several groups (P. 26 *b* and 29 *c* with the 'plough'). The spouted, long-footed vase recurs on the class of Late Minoan lentoid and amygdaloid gems widely diffused in Crete. The other side of the label is plain. (Pl. V, VI.)

P. 97 *a*. It is possible that the first sign to the left, which is much defaced, was the two-leaved spray seen on P. 86 *b*. For the third sign see Catalogue, under No. 28. The other face is plain except for a single stroke. This label, though apparently belonging to the same deposit as the others, was found in a disturbed stratum within the Sixth Magazine.

3. Four-sided Clay Bars with Graffito Inscriptions.



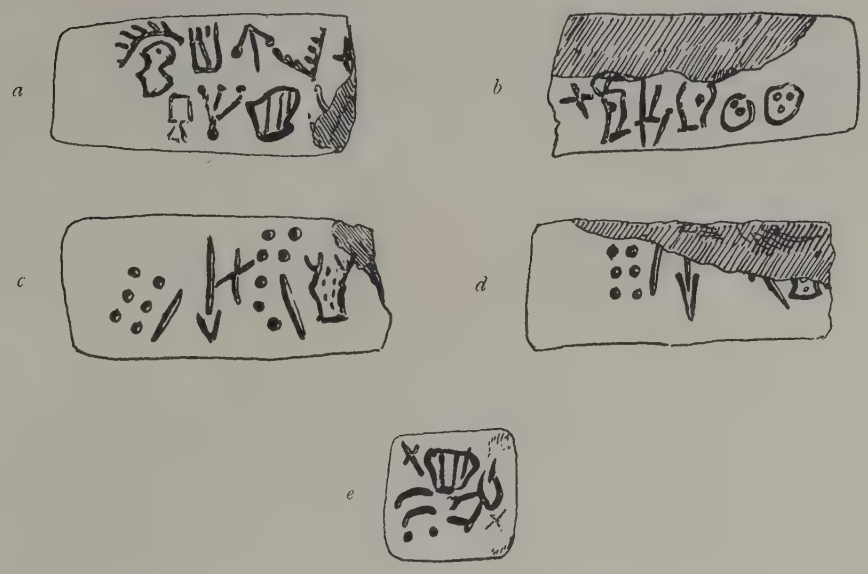
P. 100 *a*. This face, as indicated by the initial X mark, reads from right to left, and is divided by a cross-line into two compartments. In this and other cases the initial X mark is placed on the lines separating the sections. In the first compartment the 'mountains' or regional sign and 'mallet' are followed by numbers (= 6400). The second section apparently begins with a degenerate version of the 'sepia' sign (No. 60 *f*) followed by the ship and numbers (= 1400). (Pl. VII.)

P. 100 *b*. The beginning here is to the left, and this face is divided into three sections. In the first of these the 'plough' is followed by the 'saffron' sign (No. 88), here partly effaced. Two dots (= 20) appear above. The second compartment presents the 'trowel' and 'arrow-head' group with numbers (= 300). The third group shows a derivative of the olive-branch sign (No. 101 *e*), the plough, and another character only found in this place (see Catalogue, under No. 120). The associated numbers, in the form of pellets, = 50. (Pl. VIII.)

P. 100 *c*. This face reads from right to left: it is divided into three sections. The first begins with an unique character like a suspended hook (compare Catalogue, No. 33). This is followed by the curious sign (No. 135) represented as an upright line with a kind of 'eye' in the middle. The latter part of the second section of the inscription after the 'olive-spray' sign is effaced, and the third shows the recurrent 'trowel' and 'arrow-head' group with numbers (= 40). (Pl. IX.)

P. 100 *d*. The inscription is apparently divided into two sections at the point where the clay bar was afterwards broken. Its general direction is from right to left. The numbers (= 2660) after the ship in the first section curve back from left to right, so that the arrangement here is really boustrophedon. The third sign of the second section is the double axe, the first (No. 126) is uncertain and only appears in this place. (Pl. X.)

This bar is practically complete. As pointed out in § 13 below the total numbers = 11000.



P. 101

P. 101 *a*. The upper line reads from right to left, beginning with the initial X mark. The four signs of line 1 are repeated in P. 102 *a* below. The three latter of these—the 'Palace' sign (No. 41), followed by what appears to be a human bust (No. 3) surmounted by a branch—are specially remarkable. The third sign from the left in line 2 is the linear form of the 'lyre', seen in fuller outline on the fine signet impression P. 64 *a* above. This sign also occurs on the flat base of the bar. (Pl. VII.)

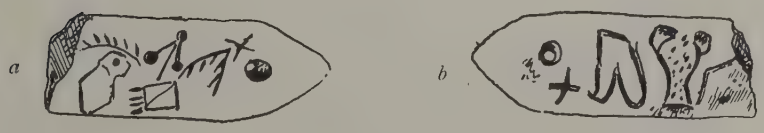
P. 101 *b*. The inscription reads from left to right. The 'goat's head' and 'plough' are followed by what appears to be a variant of the 'jar' sign (No. 49) and two disks enclosing grains. (Pl. VIII.)

P. 101 *c*. This side apparently reads from right to left. It contains two groups: (1) the 'grain-jar' sign followed by numbers (= 170); (2) the 'arrow' sign and numbers (= 160). (Pl. IX.)

P. 101 *d*. The inscription here is closely parallel to *c*. (Pl. X.)

P. 101 *e*. The inscription on the base of the bar presents, after the initial X, the 'lyre' and an enigmatic sign, running from left to right with numbers below (= 22). (Pl. VII.)

The top and bottom of this clay bar are preserved. It has no perforation.

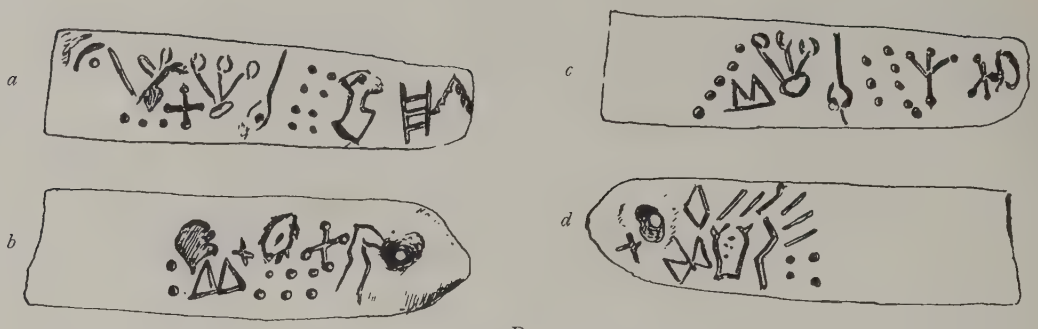


P. 102

P. 102 *a*. The inscription here corresponds with line 1 on P. 101 *a*. The first two signs read from right to left, starting from the initial mark. Next follows the 'Palace' sign (No. 41) and the 'bust' (No. 3) with the spray above. (Pl. VII.)

P. 102 *b*. Reads from left to right. The third sign is the 'zigzag' or 'serpent' sign (No. 84), which is coupled with the preceding on P. 118. The first sign (No. 123) recurs on P. 110 *d*. (Pl. VIII.)

The perforated end of this bar is wedge-shaped. The two other sides, *c* and *d*, are plain. The bar is broken at the base.



P. 103

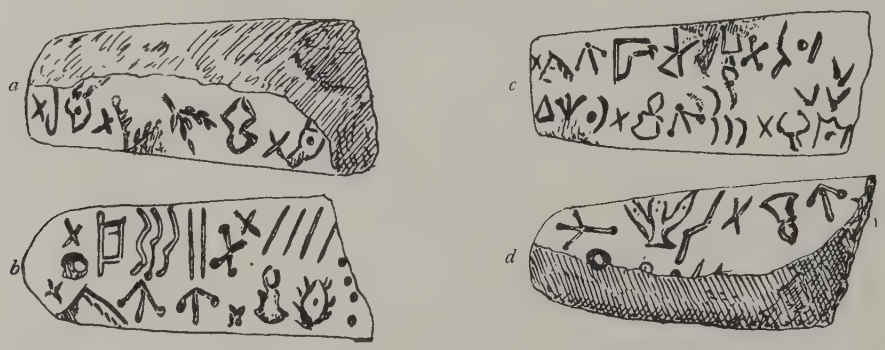
P. 103 *a*. This reads from right to left, the second group beginning with a curious sign (No. 135), consisting of a looped line, repeated on face *c*. In the first section the 'bust' sign (No. 3) is preceded by the 'forked branch' (No. 101) and 'gate' and followed by numbers (= 80). The numbers at the end of the second section seem to consist of four dots and two curved lines (= 42). (Pl. VII.)

P. 103 *b* reads from right to left. The first section ot the inscription begins with a curious figure (No. 76), which has somewhat the appearance of an animal's head and neck. It is followed by the 'cross' and 'eye' and numbers (= 60). The initial X mark precedes the second section. Here the 'mountains' sign (No. 114) is followed by an enigmatic sign (No. 76) only found in this place and numbers (= 20). (Pl. VIII.)

P. 103 *c*. In this case, too, the inscription reads from right to left. It is divided as *a* into two sections, the line with a kind of loop or 'eye' again beginning the second of these. It is possible that the oval sign at the beginning may be a simplified rendering of the 'eye' sign which is seen in the same collocation on *b*. The numbers following the first sign-group = 80, those of the second = 50. (Pl. IX.)

P. 103 *d*. This reads from left to right. For the 'double axe', 'grain-jar', and ☽ group see P. 89 *b* and 109 *a*. It is here accompanied by numbers = 1640. (Pl. X.)

This clay bar is complete. It has a perforated wedge-shaped apex.



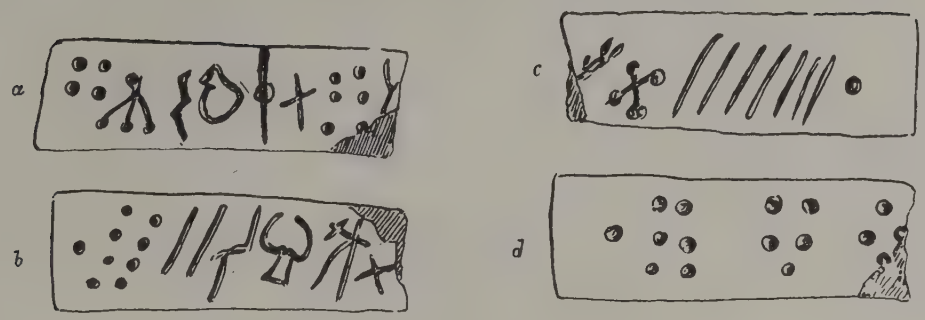
P. 104

P. 104 *a*. Reads from right to left. In this case the 'bust' (No. 3) is doubly associated with the 'olive spray' (No. 101) and another described under No. 99. The inscription was continued above. (Pl. VII.)

P. 104 *b*. Both lines here seem to read from left to right. The three numerical signs of line 1 with the double curve may each represent two units, so that the number represented would be six. Compare line 2 of face *c* in which the curved units are kept separate. The two long strokes following = 200. Line 2 terminates with the frequent 'trowel' and 'eye' formula. The other numbers (? = 440) at this end of the bar probably belong to the upper line following on the 'cross' sign. (Pl. VIII.)

P. 104 *c*. Both lines of inscription on this face apparently read from left to right. The 'angle' and 'double axe' at the end of the first group recur on the label P. 84 *a*. The numbers at the end of the line = 11, followed by what are apparently three fractional signs (∀ : see below, § 13, p. 257). The ΔΨ at the beginning of line 2 recurs as an independent group on the label P. 90 *b*. It is here followed by numbers (= 11). Next, after the initial X, appears the recurrent 'trowel' and 'arrow-head' group, with numbers (= 6). The sign at the end of the third group is probably the linearized form of the 'template' (No. 19). As in a frequently recurring formula, it is here conjoined with the ⚲. (Pl. IX.)

P. 104 *d*. Only the first line of the inscription on this side is preserved. It appears to read from left to right. The first sign-group, including the flower (No. 38 *j*), is seen on P. 109 *b* in the same order, with numbers following. The second group is the 'trowel' and 'arrow-head' formula also seen on face *c*. (Pl. X.)



P. 105

P. 105 *a*. The inscription reads from left to right, only the numerical part of the first group being preserved (= 60). The left end of the bar is perfect. It is succeeded by the X mark and a group beginning with the curious sign, No. 135. The second sign of this group is a linearized version of the 'strainer' (No. 54) carelessly executed. The 'strainer' or 'colander' sign is associated with the 'zigzag' on P. 39 and 94 *b*.

The numbers at this end = 40, making a total of 100. The record on this face thus compares with those of the 'percentage tablets' of the linear class. See below, § 13, p. 259. (Pl. VII.)

P. 105 *b*. This line also reads from right to left. The first part is wanting, but the left end of the bar is complete. The numbers at the end = 290. (Pl. VIII.)

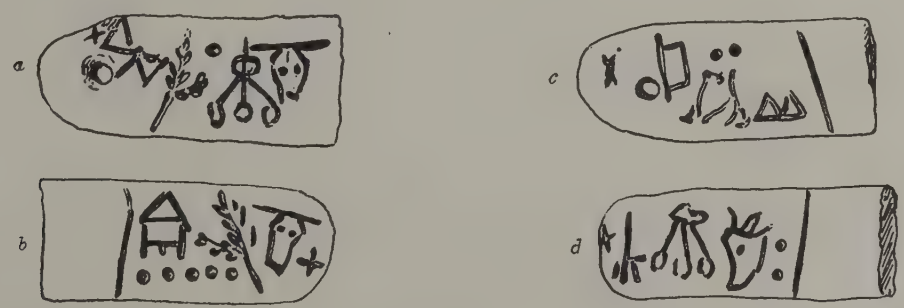
P. 105 *c*. Reads from left to right. The fragmentary sign before the cross appears to be the double 'olive spray' (No. 101). The numbers = 710, making a total of just 1000 on *b* and *c* together. See below, § 13, p. 259. (Pl. IX.)

P. 105 *d*. Groups of numbers = 70, 50, and 40+. (Pl. X.)

This bar is somewhat defective at one end.

P. 106

P. 106. Fragment of left end of bar, reading from right to left. *a* shows the 'dagger' sign (No. 15) followed by numbers = 450. On P. 28 *c* the 'dagger' is associated with the Ψ and 'eye'. (Pl. VII–X.)



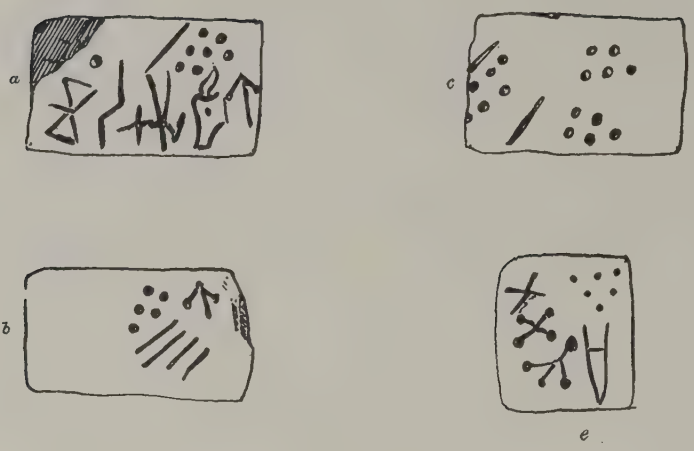
P. 107

P. 107. This bar is perfect. The inscription on face *a*, beginning with the X mark, reads from left to right. The first sign-group consists of the double axe and spray followed by a dot = 10. (Pl. VII.)

P. 107 *b*. This reads from right to left, beginning with the initial X mark. The 'store-house' sign (No. 43) recurs on the label P. 83 *a*. It is there preceded by an ox-head and a single branch, making the parallelism very close between the two groups. The numbers here = 50. On this and the following sides (*c*, *d*) the end of the inscription is marked by a vertical line. (Pl. VIII.)

P. 107 *c*. The inscription runs from left to right: the middle sign seems to be the 'handled jar' (No. 49 *a*), upside down. Above it is the number 20. (Pl. IX.)

P. 107 *d*. From the position of the X mark and the numbers (= 20) the inscription seems to run from left to right, though the goat's head is turned to the left. As pointed out in § 13, p. 258 below, the total numbers here = 100. (Pl. X.)



P. 108

P. 108. The lower half only of this bar is preserved, with an inscription on the butt (*e*).

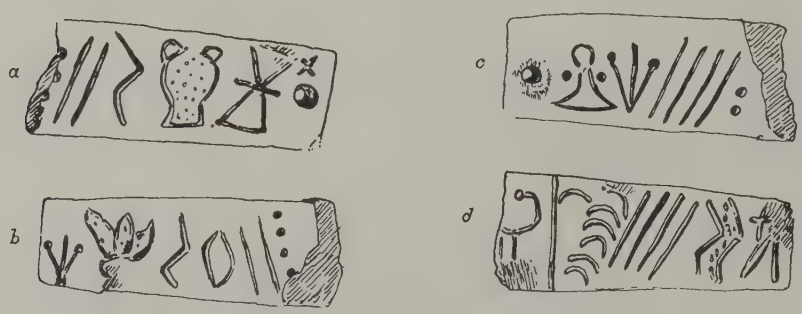
P. 108 *a*. For the double axe and ☽ see the 'label' P. 84 *b*, and compare below, P. 118. There may have been more numbers above this group. For the same conjunction of the plough, goat's head, and arrow, see P. 76 *b* and 93 *a*. The numbers above are apparently = 170. (Pl. VII.)

P. 108 *b*. The numbers seem to equal 450. (Pl. VIII.)

P. 108 *c*. For similar groups of numbers cf. P. 105 *d*. (Pl. IX.)

P. 108 *d*. This side is plain.

P. 108 *e*. The base of the bar. The inscription beginning with the 'cross', after the initial X, reads downwards from left to right. The numbers = 70.



P. 109

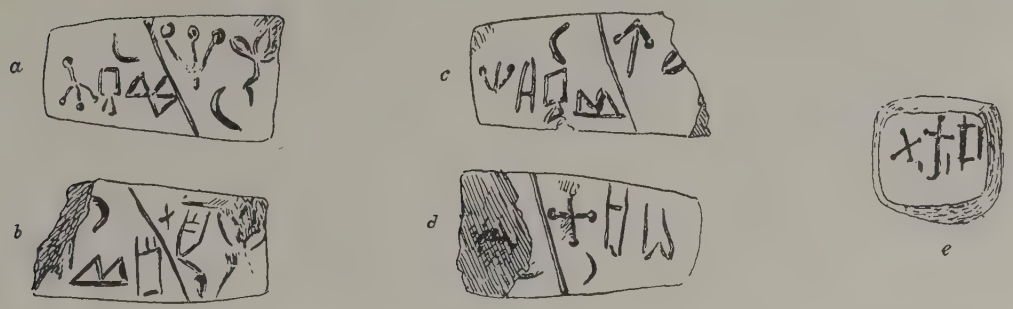
P. 109. The base of the bar is defective. The top is perforated.

P. 109 *a*. The inscription, as shown by the initial X, reads from right to left. The 'double axe' 'grain jar' and ☽ group recurs in P. 89 *b*, 103 *d*, and 118. It is here followed by numbers = 250. (Pl. VII.)

P. 109 *b*. This reads from left to right: the same sign-group (Ψ, flower, ☽) occurs in the same order on P. 104 *d*. The numbers following = 1240. (Pl. VIII.)

P. 109 *c*. This also reads from left to right. The common 'trowel' and arrow combination is followed by numbers = 420. The dot on either side of the 'trowel' may indicate that it stands by itself as an ideograph. (Pl. IX.)

P. 109 *d*. The inscription here reads from right to left. The first sign is the 'plough' (No. 27). This is also combined with the succeeding 'dotted chevron' sign (No. 115) on the label P. 93 *a*. The numbers probably = 407. A horizontal line marks off a second section of this face, but only part of a single sign, Ψ, is preserved. (Pl. X.)



P. 110

P. 110. A part of the larger end of this bar is broken away. The top or small end is inscribed. It has no perforation.

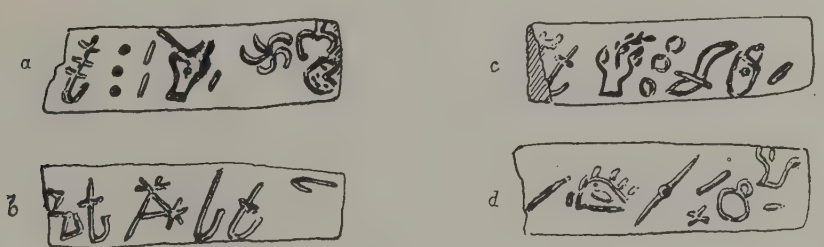
P. 110 *a*. This, like the other faces of this bar, is divided into two sections by a transverse line. The Ψ and flower are found together in P. 104 *d* and 109 *b*. (Pl. VII.)

P. 110 *b*. The 'mountains' or regional ideograph is here followed by the 'Palace' sign (No. 41). The X mark in the second section shows that the inscription reads from left to right. The first sign of this section resembles the leg of an animal. It is followed by the 'saffron' (No. 88 *c*, &c.). (Pl. VIII.)

P. 110 *c*. For the collocation of the 'mallet' and regional or 'mountains' sign cf. P. 26 *c* and 29 *c*. (Pl. IX.)

P. 110 *d*. For the last sign on this (No. 123) cf. P. 102 *b*. (Pl. X.)

P. 110 *e*. The signs on the smaller end of the bar are prefaced by the initial X. The 'gate' (No. 44 *n*) is separated from the J sign by a dash, which may be taken to show that each has an independent, ideographic value.



P. 111

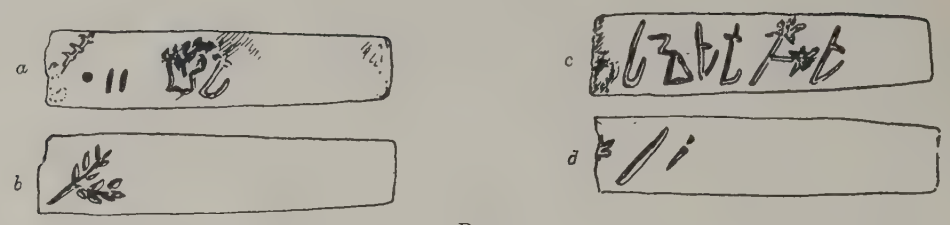
P. 111. Perhaps a third of this is wanting at the larger end. This and the three succeeding examples, P. 112, 113, and 114, show a great family likeness.

P. 111 *a*. This line reads from left to right. The numerals following the three-barred 'crook' sign = 32. The first sign of the second group is a version of the 'handled jar', No. 49, followed by a dash, which may be either a unit or mark of division. (Pl. VII.)

P. 111 *b*. The inscription reads from left to right. It is closely paralleled by P. 112 *b* and 113 *b*. The double-branch sign is the same on both, and probably shows that the record relates to the produce of a tree. It is distinct from the 'olive spray' and seems to be a conventional pictograph of a fig-tree, the typical leaves of which are five-pointed (see Catalogue, No. 103). The various modifications of the ʊ sign in this group of inscriptions are noteworthy. (Pl. VIII.)

P. 111 *c*. This, like the preceding, reads from left to right. The second sign (No. 48) recurs on P. 112 *a*. It is a variant of the 'grain jar' (No. 50), with a spray in place of grains. The spray seems to be olive and may indicate that the jar contained oil. The three annulets that follow it are possibly early examples of the 'hundred' sign prevalent in the Linear Class B. The first sign of the second group (No. 124) also occurs on the label, P. 87 *a*. The next (No. 121) is enigmatic, and is only found in this place. (Pl. IX.)

P. 111 *d*. The first sign is the human eye (No. 5). The 'strainer' and 'jar' without grain or spray are grouped in the second section. (Pl. X.)



P. 112

P. 112. About one-third of this bar is wanting.

P. 112 *a*. The first sign is evidently the three-barred crook of P. 111 *a*. The next is the jar and olive spray of P. 111 *c*. (Pl. VIII.)

P. 112 *b*. The 'olive spray'. (Pl. VIII.)

P. 112 *c*. Compare 111 *b*. The five-pointed character of the leaves of the 'fig-branch' sign is here clearly marked. (Pl. IX.)

P. 112 *d*. We have here, perhaps, the end of a branch like that of *c*. (Pl. X.)

P. 113

P. 113. Somewhat less than half of this bar appears to be wanting.

P. 113 *a*. The first sign seems to be the same as P. 111 *a*. The 𐄁 𐄂, followed by a stroke, in the second section recur together in P. 114 *a*. (Pl. VII.)

P. 113 *b*. For the 'fig-branch' and two following signs compare P. 111 *b* and 112 *c*. The first sign is unique. (Pl. VIII.)

P. 113 *c*. The three-barred ⊍ recurs on P. 111 *a* and 112 *a*. (Pl. IX.)

P. 113 *d*. The initial X mark shows that we have here the beginning of a group. (Pl. X.)

P. 114

P. 114. Somewhat less than half of this bar seems to have been preserved.

P. 114 *a*. This line apparently reads from right to left. The second group 𐄁 𐄂 recurs on P. 113 *a*. (Pl. VII.)

P. 114 *b*. This also reads from right to left. The first sign is the same as that on P. 113 *b* (No. 116). The second seems to be the 'plough'. (Pl. VIII.)

P. 114 *c*. This reads from right to left. The first sign (Cat. No. 115 *d*) is one of those that remain enigmatic. The 𐄃 ↑ recurs on the label P. 90 *b*, followed there by a numeral = 10.

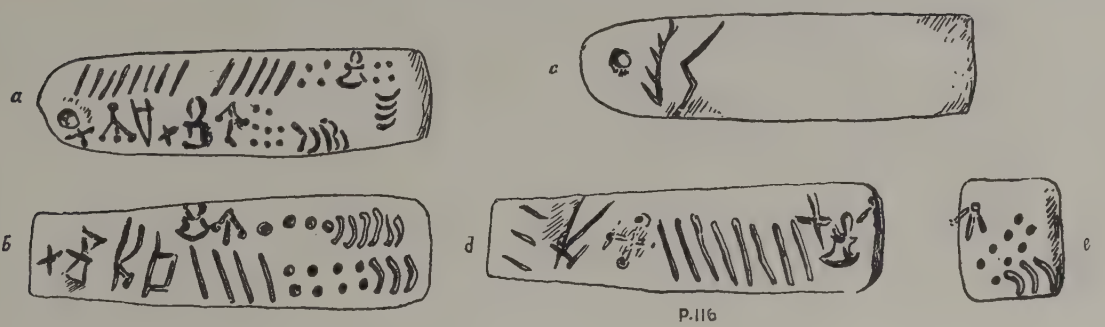
P. 114 *d*. The 𐄃 ↑ is here succeeded by three double curves, perhaps = 6. (Pl. X.)

P. 115

P. 115. Fragment of bar.

P. 115 *a*. The first sign here is the dog's or wolf's head with protruding tongue (No. 73) which is seen on the seals P. 24 *a* and 40. (Pl. VII.)

P. 115 *b*. The 'barrel' sign here (No. 54) is unique. (Pl. X.)



P. 116

P. 116. This bar is complete. It is perforated at one end.

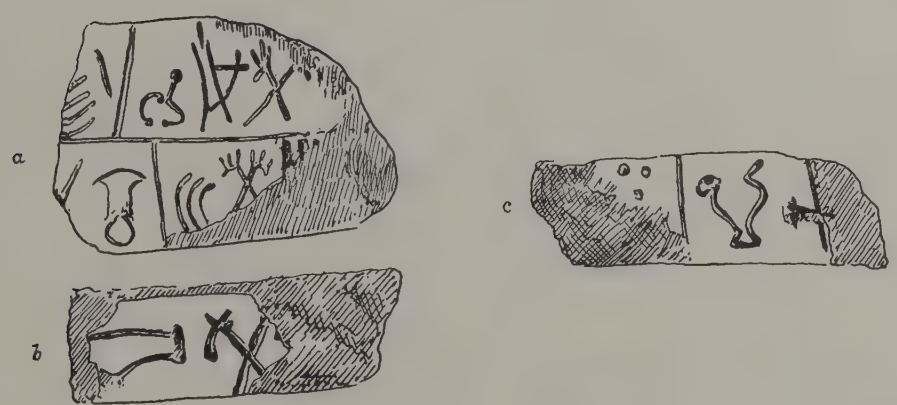
P. 116*a*. The inscription appears to begin, as indicated by the X mark, on the lower line. The second sign-group, preceded by another X, is the frequently recurring 'arrow-head' and 'trowel'. The numbers that succeed this = 86. In the upper line are two separate groups of numbers = 800 and 540. These are succeeded by the 'trowel' and numbers = 44. (Pl. VII.)

P. 116*b*. This, as shown by the X mark, appears also to begin on the lower line, and reads from left to right. The 'double-axe', 'plough', and 'gate' are followed by numbers = 483. In the upper line the 'trowel' and 'arrow-head' are followed by 46. (Pl. VIII.)

P. 116*c*. The 'one-sided spray' (No. 100) is also coupled with the zigzag ⟆ on the 'signet', P. 36 (Pl. IX.)

P. 116*d* (Pl. X) and *e*. The first group, here preceded by three dashes, is the 'plough' and 'cross' with numbers = 800. An X divides this from the 'trowel' and 'arrow-head' group, which runs over on to the base of the bar and is followed by numbers = 83.

The total of the numbers referred to in this tablet is 2882.



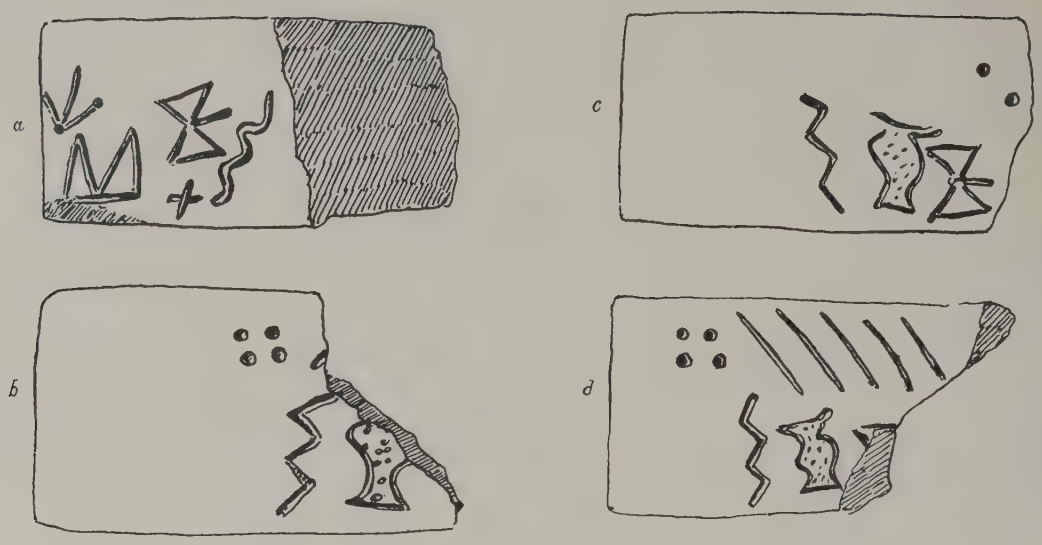
P. 117

P. 117. Part of a large bar or tablet with oblong section. The face of one of the broader sides, which was also, doubtless, originally inscribed, is entirely broken away.

P. 117*a*. The field is divided into an upper and lower zone, and each of these into two sections. In the right division of the upper line are the 'crossed hands' (No. 7), the 'distaff' (No. 28), upside down, and ⟙, a collocation which recurs on the seal P. 30*b*. In the right corner of the lower zone is a fragment of the 'palace' sign (No. 41). Its association here with the crossed hands is paralleled by the early prism-seal P. 7*b*. (Pl. VII.)

P. 117*b*. This shows what appears to be a very rude version of the 'crossed hands', accompanied by the 'plane' (No. 22), upside down. (Pl. VIII.)

P. 117*c*. The imperfect sign on this face may be identified with the 'plough' (No. 27). It is here associated with a linearized form of the 'jar' (No. 47). (Pl. IX.)



P. 118

P. 118. One end of a large bar with square section.

P. 118 *a*. Probably reads from right to left and exhibits two sign-groups. The first consists of a serpentine form of the 'zigzag' (No. 84), accompanied by the 'double axe'. The beginning of the second group is marked by the X. The 'mountains' and 'arrow' are also grouped on P. 96 *a*. The sides *c* and *d* show the 'zigzag' and 'double axe' in conjunction with the 'grain jar' (No. 50). This group recurs on P. 89 *b*, 103 *d*, and 109 *a*. The inscriptions here read from right to left. The numbers on *d* = 540. (Pl. VII, VIII, IX, X.)

4. Three-sided Clay Bar with Graffito Inscriptions.

P. 119

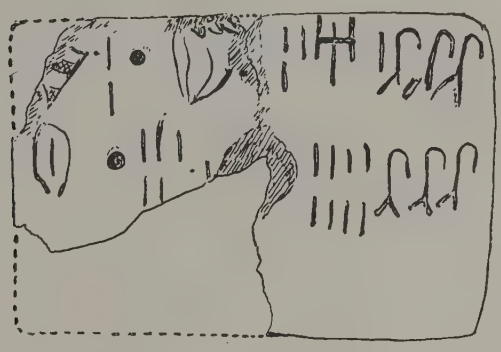
P. 119. End of a triangular bar with equal faces.

P. 119 *a*. The 'plane' (No. 22) is here twice repeated. (Pl. VII.)

P. 119 *b*. The 'plane' as on *a*. (Pl. VIII.)

P. 119 *c*. Indeterminate sign. (Pl. IX.)

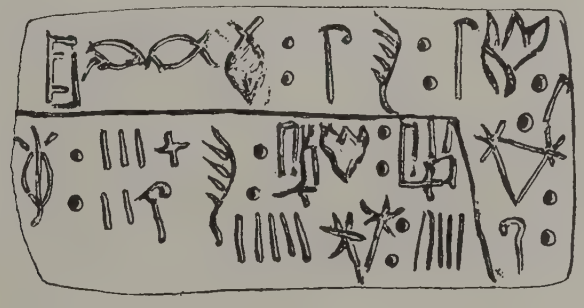
5. Clay Tablets with Graffito Inscriptions.



P.120

P. 120, line 1. This line reads from left to right. The first character is imperfect, and neither it nor the second—apparently a vegetable sign—occurs elsewhere. The third character is seen in a variant form in P. 100 *b*. The terminal sign, thrice repeated in both lines, seems to be a variant of the crook with a single bar as seen at P. 111, 112, 113. The crook here is at the top as in P. 68 *b*. It is noteworthy that in whatever form this ʃ sign appears the crook runs in the direction of the writing. In the tablet P. 121 the ʃ sign also appears at the end of groups after numbers. The figures after the first sign present the difficulty that what appear to be two units here precede the dot sign which indicates a decimal.

The first sign of line 2 possibly represents a grain of barley. It is followed by numerals = 15. The fragment remaining of the succeeding sign seems to show that it was the same sign (No. 133) that occurs at the head of the last group in the first line. (Pl. X.)

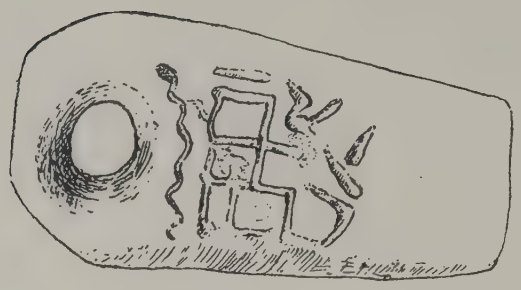


P. 121

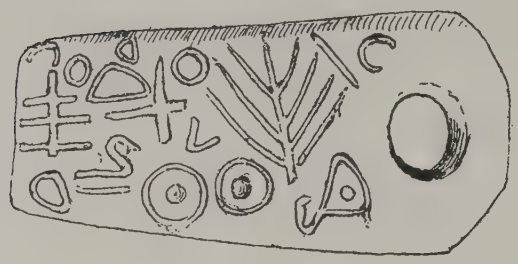
P. 121. This clay tablet was found in the Palace of Phaestos (Pernier and Halbherr, *Mon. Ant.* xii, xiii ; see above, pp. 21 and 148). The field is marked off by a horizontal line with a downward continuation [1] into two sections. The order followed by the groups in this inscription is discussed in § 12, p. 254 below. Beginning at the upper left-hand corner we see the 'gate', followed by what appear to be a pair of eyes. The next figure, a form of the 'flowering grain' (No. 94), is succeeded by two dots = 20 and the ʃ sign. Next is the 'palm-branch' (No. 100), similarly accompanied by the 'saffron' (No. 88) and the 'fig-branch' (No. 100), these latter also succeeded in each case by 20 and ʃ.

The second section also begins on the left. We have here the common 'flowering grain' sign coupled with numbers = 25 and ʃ. The cross indicates the beginning of the next group. Here we see a palm-branch again, coupled again with the number 25, and, succeeding it, an uncertain sign followed by the 'saffron' and 20. Next the same uncertain sign is repeated, and with this must be connected the 'fig-branch' and the number 25 which concludes the inscription. (Pl. XI.)

[1] This downward line appears as two separate strokes in the copy of the inscription in *Mon. Antichi*, and its function as a mere dividing line is thereby rendered non-apparent. The copy of the tablet here given is my own.



a



b

P. 122

P. 122. Tablet with large perforation and signet impression on the side. (See Plate XI.)

This tablet, found in Crete but from an uncertain locality, had been for some years in the Berlin Antiquarium, where, as already mentioned (see above, p. 21), it had been placed among Gnostic amulets. After the Knossian discoveries, however, the Director, Dr. R. Zahn, recognized that it was of Minoan origin. Through his kindness I received a cast of the tablet.

The figures and signs have an archaic aspect, and the tablet probably belongs to the same period as the engraved seals of the earlier hieroglyphic Class A. The two narrower sides show a succession of seal impressions belonging to two different *matrices*, one rounded, the other oblong. On side *c* are two oblong impressions and one rounded impression; on side *d* three oblong and one rounded. The oblong type shows traces of five characters, among which a bow fitted with an arrow seems to be distinguishable. The design on the rounded impressions may have been of a decorative nature.

Face *a* shows what appears to be the 'serpent' sign seen on the prism-seal P. 23 *a* and on the four-sided bar P. 118. It is followed by a more or less labyrinthine figure, possibly representing the ground-plan of a building, and angular and other marks.

Face *b*. Beginning at the left end, we see two principal signs ⋕ and a kind of strung bow, together with others, some of which are possibly numerals.

The cross that succeeds is possibly a very large initial mark separating off another group. The two circles with central dots may be regarded as a variant of the double-eye sign seen on the tablet P. 121. Then follows a tree-sign (cf. No. 97) and a looped figure only found in this place. With these are coupled the unit (or hundred) sign and C.

II. §9. CATALOGUE OF HIEROGLYPHIC SIGNS

Human Figures and their Parts.

1

1. The ideograph of a man standing with both arms held downwards is seen by itself on the four-sided seal P. 11 a, belonging to Class A. This figure is common on the most primitive class of prism-seals, often in company with other pictographs, and is probably to be taken as a sign of ownership.

A closely allied type appears as an ideograph—the 'man' sign—in the Linear Class B.

2 *a*

2 *b*

Linear Class B.

2. The crouched human figure 2 *a* with one hand raised occurs at the beginning of line *a* of P. 29 before the 'lance' or 'dart', No. 14, and the ass's head, No. 68. The gesture indicates a *nuance* of meaning different from No. 1.

2 *b*, which follows the 'mason's level' (No. 20) and ox-head on P. 92 a, is possibly a graffito variant of the preceding, though the symmetrical rendering of the arms would indicate a different gesture. The whole type displays analogies with certain forms of the 'man' sign as seen on a series of tablets of the Linear Class B.

These crouched human figures bear a strong family likeness to a group of closely allied Egyptian hieroglyphs showing a man in a half-kneeling posture with one knee drawn up and the buttock resting on the heel and instep of the other leg. This peculiarly Egyptian manner of sitting is not here reproduced, but it is possible that the Egyptian hieroglyphic types had reacted on the Cretan. The pose of the upper part of 2 *a*, with one hand raised in front of the head and the other arm held in a downward direction behind the body, corresponds with the form of the Egyptian 'man' sign

Egyptian hieroglyph.

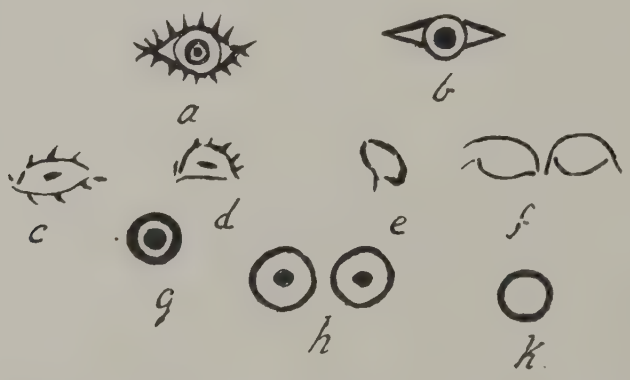
reproduced above,[1] which seems to stand as the ideograph for 'speech'.[2] A closely allied sign, with the hinder arm bent forward, stands both as a general determinative of 'man' and as the first person singular.

3. *a*, P. 101 a; *b*, P. 103 a; *c*, P. 102 a; *d*, P. 104 a.

Human 'bust' or 'idol' somewhat resembling certain marble figures from Early Cycladic and Minoan graves. It is only found in the graffito inscriptions, and in two cases with a spray above and followed by the Palace sign (No. 41), the arrow-head and the forked branch (No. 99). See P. 101 a, P. 102 a.

4. P. 26 c.

Woman's breasts. Compare the Egyptian sign 𓂡𓂡 *mna* = a nurse, &c. The sign described as probably a 'rump' in my *Pictographs* (No. 6) may be identical with this. Compare, too, the uppermost sign of P. 66 a. It is, however, possibly a badly rendered version of the 'mountains' sign (No. 114 below).



5. *a*, P. 76 (cf. P. 25 d, 28 c, 33, 45, 54 a, 56 a); *b*, P. 42; *c*, P. 103 c (cf. P. 103 b); *d*, P. 111 d; *e*, P. 103 c; *f*, P. 121; *g*, P. 27 b; *h*, P. 32; *k*, P. 14.

The human eye seems to have the natural signification of oversight' or inspection. It is constantly associated with the 'trowel' (No. 18), where it seems to form part of an official title. (See p. 265 below.) The double eyes *f* seen on the Phaestos tablet and the two pupils *h* of the Berlin tablet may be regarded as variants. The plain circle on P. 32 is also placed here among the eye signs. But

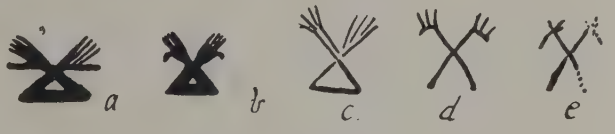
[1] From the Mastaba of Ptahhetep (Fifth Dynasty), N. de G. Davies and F. Ll. Griffith, *Ptahhetep*, Pl. IV. 4.
[2] *Op. cit.*, p. 13.

the circles with tangential lines and curves are better grouped with the solar and stellar signs.

There are three closely allied Egyptian eye signs, and *ir-t*, and the single or double pupil o, oo (= 'Eye'—'to see', 'to watch'; with the transferred meaning, 'to do').

This sign survives in both the linear scripts. It is noteworthy that the Cretan forms, *e*, *f*, and *g*, *h*, *k* respectively, supply correspondences with the two root types of the Phoenician *ayin* O and O, the latter of which survives in our O.

6. This possibly represents the human mouth. It is found, with the 'eye' and 'trowel', on the seal-impression P. 56 a.



7. *a*, P. 7 b; *b*, P. 31 b; *c*, P. 85 a; *d*, P. 117 a; *e*, P. 117 b.

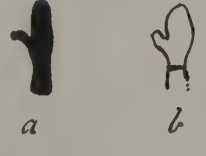
The crossed arms. This seems to be an ideograph taken from gesture language. On P. 7 b it is associated with the Palace sign (No. 41). On P. 31 b it appears with the 'sistrum' (No. 28) and on P. 117 with a plough and another implement. On P. 85 *a* this character, together with a human leg and forearm, are grouped with a saffron flower.

A sign resembling type *e* appears in the Linear Class B.

8. *a*, P. 25 b; *b*, P. 85 b.

Bent human arm with extended palm. This seems also to be a gesture sign. The forepart of the arm with extended palm is seen on one of the Jerabis inscriptions (Wright, *Empire of the Hittites*, Pl. X). Compare, too, the hand and forearm sculptured on a rock at Itanos above an archaic Greek inscription (Comparetti, *Leggi di Gortyna*, &c., p. 442, No. 206).

Derivatives of this sign are found in both varieties of the linear script.



9. *a*, P. 51 a; *b*, P. 76 a.

Human hand, palm outwards, or glove. The fact that in other presentations

of the hand, both pictographic and linear, the fingers, or some at least of them, are given, makes it possible that this figure signifies a glove. In this case the line across the wrist of *b* would indicate its lower border.

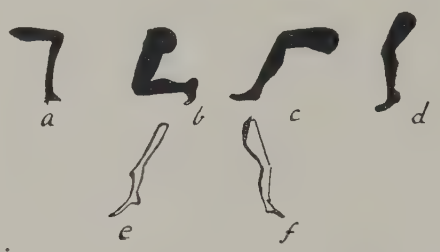
The linearized figure *b* occurs on a sealing in association with what appears to be a bee. It is possible therefore that the present sign stands for a glove used in extracting the honeycomb. Bee-keeping is a very general industry in modern Crete, and the connexion of the Melissae nymphs with the infant Zeus points to its importance in the island in very early times.

The hand sign is common in the Linear Class B, but in this case all the fingers are delineated.

10. P. 47 b.

This appears to be the human hand seen partly in profile and as if in the act of closing. It would thus stand to the preceding as the Semitic *yod*—the pictorial prototype of which seems to be also a hand in profile—stands to the Semitic *kaph*, or = 'the hollow of the hand', the latter of which is clearly derived from a pictorial original showing the palm.

The present sign is only found, somewhat roughly engraved, on the bead-seal, P. 47 b.



11. *a*, P. 11 b (cf. P. 8* a); *b*, P. 18 a (cf. P. 17 a, 20 a, b, 30 a); *c*, P. 27 a (cf. P. 19 a); *d*, P. 23 a; *e*, P. 85 a; *f*, P. 82 a.

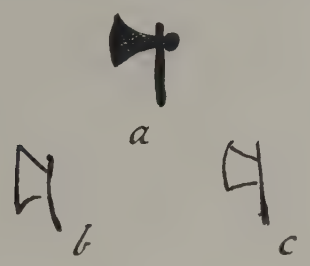
The human leg. The bent leg as an Egyptian hieroglyphic is used as a determinative for 'marching', 'approaching', and also as = *arura*, 'an acre.'

Type *a* belongs to the primitive linear class, and shows a curious parallelism with Phoenician *gimel*, which may have the original sense of a bent leg.

Attention is called in § 21 below to the frequent grouping of this sign with the 'gate' (No. 43) and ⋎ (No. 92), or in other cases with the 'gate' alone.

A human leg is seen in front of a lion on the field of a lentoid gem from a tomb of the Lower City, Mycenae (*Ἐφ. Ἀρχ.* 1888, Pl. X. 9). This gem, however, is of considerably later date than the seals and tablets showing the regular hieroglyphic script.

ARMS, IMPLEMENTS, AND INSTRUMENTS.

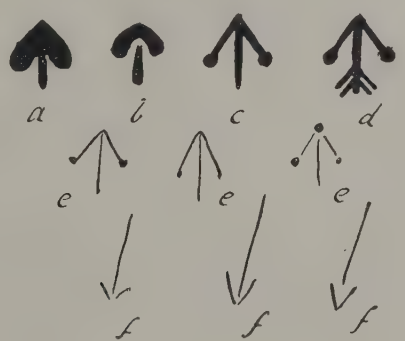


12. *a*, P. 22 b; *b*, P. 86 b; *c*, P. 83 a.

The perforated single axe is rare among Minoan remains. The pictograph is best shown, in conjunction with a bounding kid, on the prism-seal P. 22. In this connexion it looks as if it had a sacrificial sense. A perforated bronze single axe of the same general type, but with the blade somewhat less spread, was obtained by me from Delphi. It is incised with hieroglyphic signs (see p. 59, Fig. 35, above).

Types *b* and *c*, found on clay labels, seem to be graffito versions of the same sign. In each case they are associated with the 'cross' (No. 112).

This type of single axe seems to supply the origin to a sign of the linear series, Class B. (See Vol. II.)



13. *a*, P. 5 a; *b*, P. 15 c; *c*, P. 24 c; *d*, P. 27 d (cf. P. 2 b); *e e e*, passim; *f f f*, P. 76 b, &c.

The arrow is one of the most constantly recurring signs. Usually only the head is shown, but at times the shaft is seen, as in *f, f, f,* and the feathers appear in type *d*. The early forms of the sign, *a* and *b*, show a very broad head. The Hittite hieroglyphs present some close parallels.

Jerabis (*op. cit.*, Pl. VIII. D, l. 4, and Pl. X, l. 4).

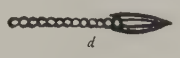
Gurun and Bulgar Maden (R. and H., Pl. II and Pl. IV, Fig. 2).

The 'arrow' is often coupled with the 'trowel' (No. 18). (See § 21, below.) On

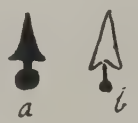
P. 112 it appears twice with the Δ (No. 130). On P. 94 a and 76 b it is connected with the heads of Cretan wild goats, and seems to stand as an ideograph for a hunter. On P. 2 b it occurs twice by itself, and on P. 22 c it is also seen alone.

14. *a*, P. 15; *b*, P. 22 d; *c*, P. 29 a.

Lance or dart. The primitive type *a*, which certainly resembles a lance-head, occurs in company with a double axe and an arrow-head.



An interesting variety of this character is seen in P. 14 *d*, which seems to represent a lance with a segmented shaft, apparently of cane. It appears on two sides of the prism-seal P. 47, in company with the 'eye', in one case with the addition of the cross (No. 112).



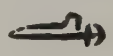
15. *a*, P. 28 c; *b*, P. 106 a.

Fig. 33 *d*. The dagger symbol appears in two forms among Egyptian hieroglyphs, *bakasu* and χαα. When it occurs among Hittite signs it is grasped by a hand (Hamath, Wright, *op. cit.*, Pl. III. H. iv, line 1, and Jerabis, *op. cit.*, Pl. XII).

It is a noteworthy fact that the sword, which is typologically an outgrowth of the dagger, is not found in the Cretan hieroglyphic series. It occurs, however, as an ideograph in the Linear Class B (see above, p. 55, Fig. 30)—an evidence of a later date.

16. P. 44 a.

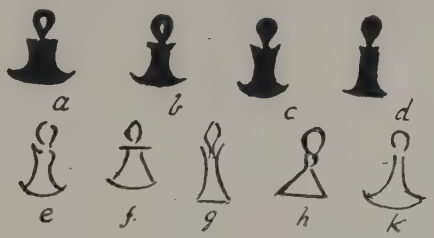
Arm holding curved instrument. It may be compared with the Egyptian , used as a determinative for what requires strength, and thus *nḫt* = strong.



17. P. 86 a.

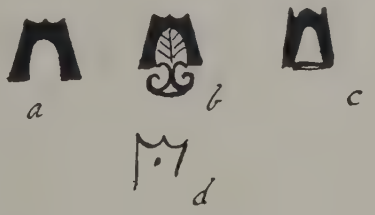
Uncertain implement or instrument. It seems to have a handle with a guard

at one end, and may be, possibly, a knife of peculiar shape in a sheath. It is grouped on P. 86 a with the 'saffron' (No. 88) and the 'plough' sign.



18. *a*, P. 5 a; *b*, P. 7 a; *c*, P. 24 c, &c.; *d*, P. 28 d, &c.; *e*, P. 103 b, &c.; *f*, P. 80 b, &c.; *g*, P. 87 a, 100 b; *h*, P. 100 c; *k*, P. 109 c.

Perhaps a trowel. This figure, which is the most abundant of all the hieroglyphic signs, was described by me in my first work on the Cretan Pictographs, p. 36 [305], as probably an 'arbelon' for cutting leather. It is preferable to regard it as a trowel used in building. As shown below (§ 15) it is frequently coupled with an 'adze' of Egyptian form (No. 21), and it is noteworthy that this latter tool, coupled with the saw, forms the Egyptian ideograph signifying a 'builder', a title valued by the Pharaohs.



19. *a*, P. 24 c (cf. P. 23 b, 25 a); *b*, P. 24 a; *c*, P. 30 d (cf. P. 18 c and 20 c); *d*, P. 104 c.

The 'template' sign. In my first work on Cretan Pictographs (p. 36 [305] and pp. 50 [319] seqq.) I pointed out the pertinence of the connexion of the plain type *a* and that with the palmetto and spiraliform scroll shown in *b*. Reasons were there given for identifying this figure with a 'template' or stencilling plate for the decoration of a Palace hall.

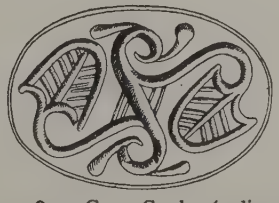


Fig. 98 *a*. Gem, Goulas (2 diams.).

In confirmation of this I was able to cite a gem from Goulas of the convoluted type (Fig. 98 *a*), in which the palmette design was coupled with a returning spiral pattern recalling the combination of the lotus and spiral in the ceiling of Orchomenos. By means of a practical model (Fig. 98 *b*, *c*, *d*) it was there shown that a template of this kind would have been of great utility in producing such a ceiling design.

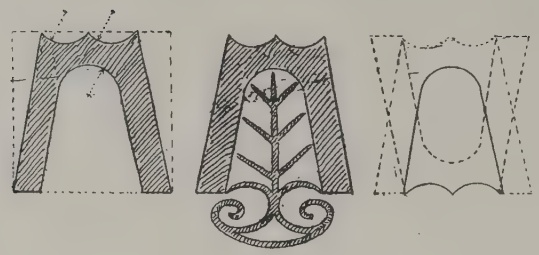


FIG. 98 *b, c, d.*

The use of the incurved notches at the top of the figure also became at once apparent. The symbol, first applied with the top of the arch uppermost so as to stand on a line ready ruled, gave the upper outline of the leaf, for which the inner margin of the arch supplied the tracing. Now, turning the figure upside down, and carefully adjusting its feet to the terminal points of the upper border of the tracing already made, it will be seen (Fig. 98 *d*) that the double curves fit into the lower opening of the arch, and give the two incurving lines required for the lower margin of the palmette.

So far as the date is concerned it has since been made clear from the discoveries at Knossos and elsewhere that this class of decorative design goes back in Crete to the Middle Minoan Period and to an earlier date than the Orchomenos ceiling. The Goulas gem is of the same date as the 'hieroglyphic' seal-stones of Class B. In other words, it belongs to the Second or Third Middle Minoan Period.

The divergent spiral designs already appear on a contemporary fresco found in the East Quarter of the Knossian Palace and on vases of the best polychrome style. The palmette, which is seen repeated on P. 23 b, already occurs on a vase of the first Middle Minoan age found near the early Ossuary of Hagia Triada. Moreover, the palmette and divergent spiral are already seen combined in a ceiling of a Twelfth Dynasty Egyptian tomb at Assiout[1] belonging to the reign of Usertesen I. This vegetable motive, here described as a 'palmette', has in fact a much earlier history in Egypt. It reproduces the characteristic outline and inner ramification of a very early determinative for 'tree', which is also a word sign meaning 'graceful' and 'refreshing'.[2] This figure appears on a perch as an Egyptian Nome sign.[3] An example of the 'tree' sign from the Fifth Dynasty Mastaba of Ptahhetep is given on Table XVI (*h*), p. 240.

It will be seen that the interior of the template corresponds with the outer edge of the palmette, while the two small curves above answer to those at its base. The connexion of the present sign with this pattern is now further corroborated by the fine prism-seal, P. 23 (Pl. II), where the characteristic formula in which it occurs is associated with an arched design on either side composed of three palmettes.

It has been suggested in § 21, below, that the formula in which the 'template' sign occurs on this and other seals is the title of a Minoan prince recording his activity as a palace builder.

[1] Wilkinson's *Manners and Customs of the Ancient Egyptians*, i, Pl. VIII. 7, and cf. Newberry, *Scarabs*, p. 81.

[2] Griffith, *Mastaba of Ptahhetep*, p. 24.

[3] Apparently the Twentieth and Twenty-first Nomes; see Griffith, *op. cit.*, p. 24 and Pl. XX. 174, 192.

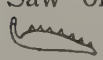
The graffito type *d* is probably a linearization of the more pictorial forms of this sign. It does not seem to be represented, however, in either class of the later linear script.

20. P. 92 a.
This sign is grouped with an ox-head on the clay label P. 92 a.
It seems to represent a mason's level.

a *b*

21. *a*, P. 23 c (cf. P. 24 b); *b*, P. 29 b.
Adze with handle of an Egyptianizing form, recalling the hieroglyphic character *s-t-p* = 'to chose'. This Egyptian hieroglyph is coupled with the 'saw'—*w-s*—with the sense of builder.[1] The Cretan sign in all three cases where it occurs is coupled with the 'trowel' (No. 18), probably with the same meaning. The form of the handle of this instrument is quite Egyptian, showing the characteristic imitation of an animal's leg and hoof. (See Table XVI, *l*, p. 240, below.). What appears to be a derivative of this occurs in the Linear Class A.

22. P. 119 a (cf. P. 119 c).
Apparently a kind of plane. This figure is repeated, but less clearly, on the same tablet (P. 119). It differs from the preceding adze sign in its greater elongation, the base line, and the knob, which may be a handle or even some kind of screw on the back.

23. P. 27 b.
Saw of Egyptian form resembling the pictorial original of the hieroglyph *w-š*  . Early wooden saws of this form, set with flint teeth and resembling the jaw of an animal, have been found in Egypt. Coupled with the 'adze' this sign denotes a builder (see above, under No. 21). The Cretan sign survives in both classes of the linear script.

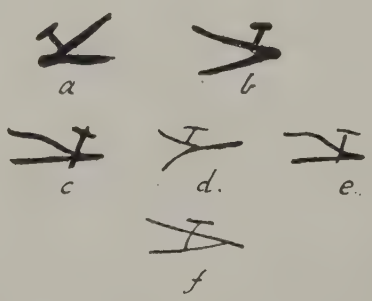
[1] F. Ll. Griffith, *Mastaba of Ptahhetep*, Pl. XIII, 273.

24. *a*, P. 6b; *b*, P. 24a, P. 27a, P. 38; *c*, P. 26b; *d*, P. 50b, P. 63b, P. 109a, c, &c.
The mallet. Type *a*, on a prism-seal of Class A, shows the earliest form. The sign may be compared with the Egyptian = a mallet, determinative of 'to fabricate' or 'build'. The Hittite from Gurun[1] affords a close parallel to this and the above.

This sign, which may very well have relation to building, or even to a group of buildings or a town, is frequently associated with the 'mountains' or territorial sign (see p. 262). In these formulas it is also associated with the plough and goat's head (P. 26 b) or the plough alone. It is also found with the goat's head alone, P. 38, 78 a, and the ox-head, P. 50 b, 63 b.

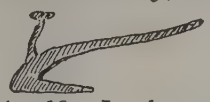
25. P. 26 c.
Ring-handled instrument, perhaps of metal. It is distinct in form from the 'trowel' (No. 18) and the 'mallet' (No. 24).

26. P. 18 a.
Peg, mace, or sceptre. Compare the Egyptian = club, = mace, symbol of 'brilliancy' and 'whiteness'.



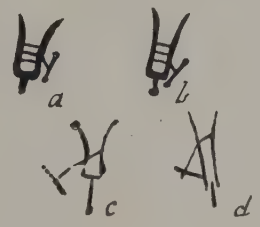
27. *a*, P. 29 c; *b*, P. 26 b, d; *c*, P. 105 b, &c.; *d*, P. 64 d; *e*, P. 86 a, &c.; *f*, P. 94 b.
Plough of primitive form with the pole and share beam in one piece. The type

[1] Ramsay and Hogarth, *Prehellenic Monuments of Cappadocia*, Pl. IV. 2, line 2.

resembles that in use in early Greece and Italy, and of which a design dating from the Early Empire is given in Fig. 27.[1]  Ploughs of much the same simple form are still to be seen in Crete itself. In the conventional sign as seen above there is a tendency to make the length of the share equal to that of the pole.

The Egyptian hieroglyph for plough (*hb*) is somewhat more complicated, having two handles.

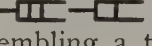
This sign is twice repeated after the 'mountains' or territorial sign on P. 26 b, and again on P. 29 c.



28. *a*, P. 31 a; *b*, P. 31 b; *c*, P. 97 a; *d*, P. 117 a.

In my Cretan Pictographs (p. 37 [306], No. 19) I described this as a kind of musical instrument with a *plectrum* attached. Though at first sight it recalls a lyre from its horn-shaped sides, it is essentially a harp, its opposite sides being connected with three strings and not by a cross-piece. Regarded as a harp, however, it presents an entirely new type, apparently standing in the same relation to the Asiatic horn-bow as the simple forms of African and other harps do to the wooden bow.

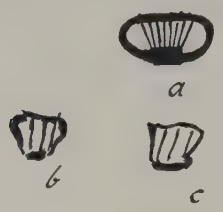
On the other hand, the Hagia Triada Cup, showing the 'Harvest Home' rout, has now revealed the existence of the primitive type of Egyptian *sistrum* in Crete. But the *sistrum* is essentially a metal instrument and the wires run across an oval frame, not an open one like the present with horn-shaped sides.

In my Report on the Excavations at Knossos (1902, pp. 67, 68) I compared a further sign, with one or two cross-bars, that appears on the blocks of part of the Domestic Quarter of the Palace  with this character, and was induced to regard it as a forked distaff, resembling a type found in Southern Europe, with a pendant spindle.

Further light may eventually be thrown on this enigmatic figure.

On P. 31 c this sign accompanies the 'saffron flower' (No. 88 *a*), on P. 31 b the and the crossed hand sign (No. 7), and the same collocation occurs on P. 117 a. On P. 97 a it is associated with the same flower and No. 60 *f*.

[1] See Sophus Müller, *Charrues, &c., Mém. de la Société des Antiquaires du Nord*, 1902, pp. 35 seqq. and Fig. 5.

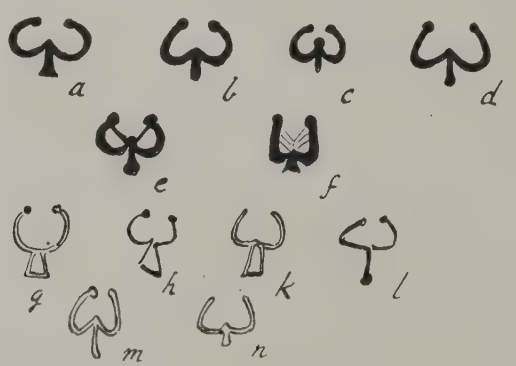


29. *a*, P. 64 a ; *b* and *c*, P. 101 a and e.

Lyre. This occurs in conjunction with ♆ on the fine signet impression P. 64 a. On the seal-impression it shows eight strings, but the representation is too small to enable us to draw any absolute conclusion as to the number on the instrument itself.

A more advanced form of lyre is seen in the hands of a male performer on the painted Sarcophagus of Hagia Triada[1] (Late Minoan II). In this case there are seven strings; in other words, it represents the double of the primitive tetrachord—the Greek tetrachords when succeeding one another having a tone in common.[2] A more summary figure of the same instrument is seen on a fragment of pottery of the latest Palace period found at Knossos.

The above pictographic sign shows that this fully developed form of lyre was already known in Crete during the Middle Minoan Age—in other words, at least a thousand years before the date of the reputed innovation of Terpander, who, according to Greek tradition, first increased the number of the strings from four to seven.



30. *a*, P. 26 d; *b*, P. 23 b; *c*, P. 31 d; *d*, P. 25 d; *e*, P. 18 c; *f*, P. 30 d; *g*, P. 64 b (cf. P. 113 a, &c.); *h*, P. 75 b; *k*, P. 105 b; *l*, P. 117 a; *m*, P. 65 b; *n*, P. 111 a, &c.

Pronged instrument of uncertain use. It is of frequent appearance both on the seals and tablets. It forms the central sign in a constantly recurring formula of the signets (P. 18 c, 20 c, 23 b, 25 a, 30 d), which is probably an official title (see below, § 15). The two other signs with which it is associated in this formula are

[1] R. Paribeni, *Il Sarcofago dipinto di Haghia Triada* (*Mon. Ant.*, 1908 [XIX], Pl. I and p. 37).

[2] Paribeni, *loc. cit.* (cf. Gevaert, *Hist. et théorie de la musique dans l'Antiquité*, I, p. 87).

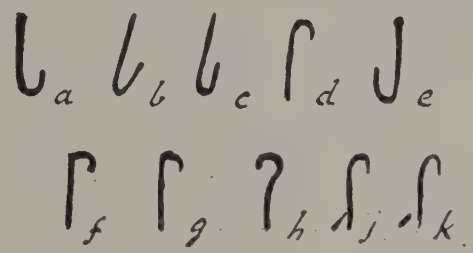
the 'template' (No. 19) and the Ψ sign (No. 92). On the clay bar P. 104 c it is also associated with a linearized form of the 'template' sign. On the bead-seal P. 30 b it is grouped with the 'crossed arms' (No. 7) and the uncertain instrument (No. 28), and the same collocation occurs in a graffito form on the clay bar P. 117 a.

Too much account should not be taken of the small cross-lines seen in the interior of types *e* and *f*, as they are very probably due to the ornamentalizing tendency of the glyptic style. No trace of such adjuncts is to be found in the graffito series.

This sign continues to be frequent in both the linear classes.

31. P. 30 c.

This has the appearance of a suspended tablet.



32. *a*, P. 26 d; *b*, P. 113 b; *c*, P. 112 c, 111 b; *d*, P. 68 b; *e*, P. 52 b (cf. P. 104 a); *f*, P. 121 (Phaestos); *g*, P. 121; *h*, P. 121; *j*, P. 120; *k*, P. 120.

The crook or hook. This sign, resembling a capital J, is placed in any position. On P. 111 b we see a small example of this character laid horizontally with the curved part downwards.

On P. 68 b this sign is grouped with the 'gate' and the 'sepia' (No. 60); on P. 52 b with the 'grain jar' (No. 50) and Ψ; on P. 26 d with the plough and the ass's head (No. 68). But its main association is with vegetable figures. Thus on the Phaestos tablet (P. 121) it is coupled severally with the palm branch (No. 100), the 'saffron' (No. 88), and the 'fig branch' (No. 103). On P. 111 b and 112 c it is again associated with the 'fig branch'. In fruit gathering the crook was naturally a convenient instrument, and the sign may have acquired a secondary meaning of 'ingathering' in general or even of a certain fixed measure applicable to fruit or vegetable produce.

Types *j* and *k*, with a kind of spur at the bottom of the upright stroke, might also be regarded as variants of Nos. 33 or 34 below.

In form this sign resembles the Egyptian ∫ = *se*, which has, however, especially in its earlier shape, a longer crook. This is interpreted as a curved thread, and it forms part of an ideographic figure signifying cloth.[1]

[1] F. Ll. Griffith, *Hieroglyphs*, p. 45.

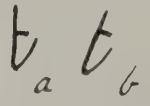
A much closer comparison is supplied by the early type of the Egyptian shepherd's crook, '*w-t*' = small cattle. A Fifth Dynasty form of this, as seen on the Mastaba of Akhethetep,[1] closely resembles type *g* above. The more usual crook sign, which is a badge of royalty (*heq*), is a later development of this.

This sign has a special interest from the fact that three slightly differentiated varieties are found standing in close relation to it and placed in the same groups with it. We see a sign with a single bar (No. 33), with a spoke in front (No. 34), and with three bars (No. 35). This differentiation of the meaning of signs by the addition of bars is well illustrated by examples of the Linear Class B, where one of the characters to which this system is applied is itself apparently a crook sign of a more developed form, probably a shepherd's crook. This artificial modification of the sign, in accordance, doubtless, with some differentiation of its meaning, is of great importance as showing a certain official regulation of the hieroglyphic script.

The plain crook or J sign, as seen above, survives in the Linear Class A.

33. *a*, P. 111 b (cf. P. 112 a, 113 b); *b*, P. 112 b; *c*, P. 110 e.

The single-barred crook. This is evidently a differentiated version of the preceding sign. On P. 110 e it is associated with the gate. Otherwise it appears in the same connexion as the simple crook. Thus, on P. 111 b it precedes the 'fig-branch', while No. 32 follows after it. On P. 112 c we see a similar association. On both P. 111 b and 113 b, both the single-barred and the simple crook appear together after the 'fig-branch'. On P. 111 c and 112 a, on the other hand, the sign is seen immediately before or after the jar with the olive spray (No. 48).



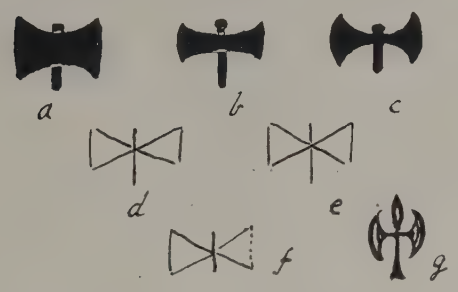
34. *a*, P. 112 a; *b*, P. 112 c.

Spoked crook. Both *a* and *b* occur on P. 112 c and are there clearly distinguished from the one-barred crook No. 33.

35. Three-barred crook. This sign occurs on P. 111, preceding the number 32 and the jar (No. 40) with an angular object in its mouth. It is seen again on P. 112 a, succeeded by the number 12 and the jar (No. 48) containing an olive spray.

[1] *Ptahhetep and Akhethetep*, Pl. XIII, Fig. 281.

CULT OBJECTS AND RELIGIOUS SYMBOLS.



36. *a*, P. 15 (type on early sealings); *b*, P. 24 a (cf. P. 16, 29 d, 59 a, 62 a, 70 a); *c*, P. 41 b; *d*, P. 103 d, 104 c, 107 a, 108 a, &c.; *e*, P. 64 c; *f*, P. 109 a; *g*, P. 70 a.

The sacred double axe sign is of constant recurrence. The weapon served as the fetish image of the chief Minoan divinities, and is the prevailing sign on the walls of the Palace-Sanctuary of the Knossian kings. It forms the subject of many religious scenes and its actual worship is depicted on the Sarcophagus of Hagia Triada.[1]

There is evidence of the existence of more than one shrine of the Double Axe in the Palace of Knossos, and as, among the allied Carian population, it was worshipped under the name of *labrys*, it is probable that the name of the Labyrinth at Knossos refers to the Palace-Sanctuary of the Cult,[2] and represented the Western dialectic form answering to that of the Carian Labraundos (='The Place of the Double Axe'). Assuming that the Cretan name for the double axe approached the Carian we must suppose that the phonetic equivalent of the sign was a dialectic form of *labrys*.

On P. 64 c the double axe is associated with the Palace sign. As an ideograph the sign may at times cover a religious title in connexion with the Minoan priest-kings. In a recurring formula (see pp. 252, 253) it is grouped with the serpent or zigzag (No. 84) and grain jar (No. 50). In one case it is coupled with the 'serpent' alone, a point of some significance when it is remembered that the snake, like the double axe itself, was a special attribute of the Minoan Mother Goddess (see 'Knossos', *Report*, 1903, pp. 85 seqq.).

On two signet impressions of the hieroglyphic series this sign occurs by itself, on P. 62 a in a variant and ornate form, with a high oval summit.

On the Late Minoan gems of Crete the double axe also frequently occurs as the sole type, perhaps possessing a talismanic virtue. Bronze double axes are abundant in the votive deposits of the Cretan cave sanctuaries like that of Psychro (Diktê).

[1] R. Paribeni, *Il Sarcofago dipinto di Haghia Triada* (*Mon. Ant.*, 1908 [XIX], Pl. I).

[2] Cf. Kretschmer, *Einleitung*, &c., pp. 303 seqq.; Fick, *Vorgriechische Ortsnamen*, p. 23, and see above, pp. 102, 103.

The hieroglyphic formula, in which this sign is coupled with the 'trowel' (see P. 58 a), may also represent an official title of a kind which would be specially appropriate to the royal founders of the Minoan palaces.

37. This sign, which is coupled with the 'bull's head' on P. 21, is most probably to be identified with the 'horns of consecration' which play so prominent a part in the early Cretan religion. They are placed on shrines and altars and at the foot of the cult objects, such as the double axe and sacred trees and pillars.[1]

The figures of the prism upon which this sign occurs are unfortunately of careless execution, and its outline somewhat approaches certain degenerate versions of the 'template' (No. 19), from which, however, it must be distinguished.

38. *a*, P. 5 a; *b*, P. 6 a; *c*, P. 20 b.

This sign is clearly rather a *bucranium* than a simple ox's head (cf. No. 62 below). As such it had doubtless a religious meaning. A 'Late Minoan' lentoid gem (Berlin Museum Cat., Pl. I. 22) shows an altar table on which an ox is being sacrificed, the front of which is decorated with *bucrania*[2] like so many later altars (see Fig. 99).

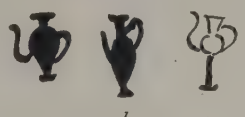
Fig. 99. Engraved Lentoid Bead in the Berlin Museum. (3/1)

[1] See my *Myc. Tree and Pillar Cult*, pp. 37 seqq.

[2] Slender pilasters appear between the *bucrania*. Dr. Furtwängler in his description of the gem speaks of the *bucrania* as if they were simple supports. In my *Picts.*, p. 40 [309], I erroneously referred to this gem as in the British Museum.

39. This sign greatly resembles the Egyptian *ankh*, the symbol of 'life' and 'divinity'. It is seen by itself on P. 70 c, and also appears as the sole type on a very early lentoid of black steatite from Central Crete, where it apparently had a symbolic value. The sign survives among the characters of both classes of the linear script. It also appears with other signs on a Cypro-Mycenaean gold ring.[1] Certain varieties of the Cypriote *ra* suggest comparisons.

For the *ankh* as a Minoan and Mycenaean symbol and its combination with the double axe, see my *Mycenaean Tree and Pillar Cult*, pp. 80, 81.

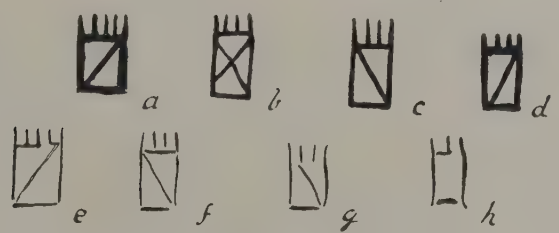


40. *a*, P. 41 b; *b*, P. 49; *c*, P. 96 a.

Spouted vessel, perhaps for libations. This vase with its curved spout resembles the Egyptian libation vases, *qebeh*, except that it has a handle, the handle being a usual addition to Cretan adaptations of Egyptian forms. It also recalls the Persian *ibrik* or metal ewer.

The figure recurs by itself or beside a plant or spray on a series of lentoid and amygdaloid bead-seals found in Crete, and had probably a religious value. A spouted vessel of blue-glazed faience was found in the Room of the Throne at Knossos.

Buildings and Accessories.



41. *a*, P. 7 b; *b*, P. 6 a; *c*, P. 26 a; *d*, P. 75 a. 1; *e*, P. 64 c; *f*, P. 102 a; *g*, P. 101 a; *h*, P. 109 b.

This sign is identical with secondary forms of the Egyptian hieroglyphic for 'Palace' = *aha*. The Egyptian figure in its original aspect is seen to be a tower (see § 10, pp. 239, 240, and Table XVI, *c*), sometimes placed within a double courtyard.[2] This is represented by 'a nearly square enclosure, the wall of which is carried half-way

[1] See above, p. 70, Fig. 38.

[2] F. Ll. Griffith, *Hieroglyphs*, Pl. III. 30, and pp. 34–36.

along the front and then turns in at a right angle enclosing an inner court'. The tower itself, which stands for 'palace', is represented in its complete form as of two stories, and Mr. Griffith [1] has suggested with great probability that the diagonal line, corresponding to that of the Cretan sign, marks the direction of the staircase to the roof.

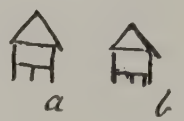
It is noteworthy that on the seal-impression (P. 71 a. 1) this sign is associated with what seems to be the 'bee' sign, which in Egypt was an emblem of royalty. On P. 46 c we see it grouped with the sacred double axe, and in this case, and again on P. 6 a, it is brought into connexion with the facing head of a horned animal, perhaps a *bucranium*.

It seems as if in this instance we had a clear example of Cretan character taken over from the Egyptian series.

42. *a*, P. 104 c (cf. P. 104 b); *b*, P. 87 a; *c*, P. 84 a.

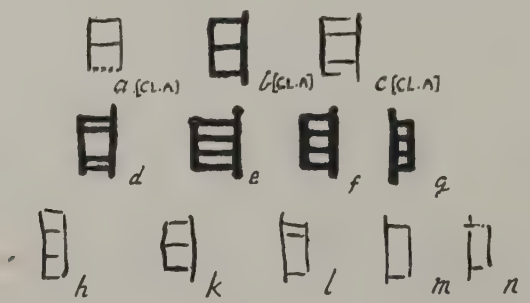
An angle, perhaps of a building. It occurs on the two faces of the clay bar P. 104, in one case in association with the double axe, arrow and double spray (No. 101 *e*, *f*). Type *b*, which occurs on P. 87 a, seems to be a variant of the same sign. It is grouped with the enigmatic sign No. 116. Type *c*, again, appears in association with the double axe.

Compare the Egyptian 𓐍 *knb* = an angle. The 'angle' also occurs on the Phaestos Disk.



43. *a*, P. 83 a; *b*, P. 107 b.

Hut on piles, probably a storehouse. This sign occurs in both cases in the same group, associated with an ox-head and the spray No. 101, perhaps olive.



44. Type A. *a*, P. 8* *b*; *b* (Class A), P. 1 a, 11 b (Class A); *c*, P. 6 b

[1] *Op. cit.*, p. 36.

(Class A); *d*, P. 22 a; *e*, P. 18 a; *f*, P. 71 a, &c.; *g*, P. 23 a; *h*, P. 58 b, &c.; *k*, P. 62 b, &c.; *l*, P. 104 b; *m*, P. 82 a, 107 c, &c.; *n*, P. 110 e.

Type B. *a*, P. 19 a, 30 a; *b*, P. 20 a; *c*, P. 59 a.

The 'gate' sign, which may also signify an 'enclosure' generally, is one of the most constantly recurring. It is divided into two distinct classes according as the bars are horizontal (A) or vertical (B). That this latter type refers to the same object appears from the indifferent use of both in an identical position in the same frequently repeated formula in which this sign is coupled with the human leg and the ⅄. See below, pp. 237, 261.

It seems to enter into official titles and to convey the ideographic sense of keeper or guardian. In one case it is coupled with a pig (P. 22 a). In certain formulas it is attached to the sacred double axe (cf. P. 29 d and 59 a), and in these and other cases is also associated with the 'cross' sign.

The prevailing comparisons suggested by this character are with the Semitic *chêth*[1] and *hê* and the Greek *êta* (see p. 90). It is a noteworthy fact that the four-barred Boeotian type of *êta* points to a prototype like Type A *c–h* above (see *Picts.*, p. 92 [361]), and that no trace of this four-barred version is to be found in the Semitic series.

The three- and four-barred types of this sign survive into both the later linear classes.

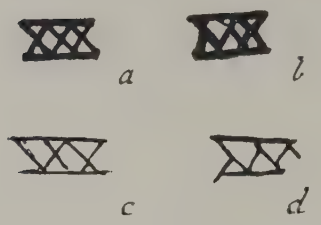
45. This sign seems to be rather a hurdle or section of a fence, and may in its origin be a differentiation of the preceding, with which it is closely allied. It is found in company with the 'human bust' (No. 3) on the clay bar P. 103 a.

The true analogies of this type seem to be with the Semitic *chêth*, which, if we may judge from an Arabic word of similar form, signifies a 'fence'.[2] The Greek H (*êta*) represents the final simplification of the Semitic letter. This sign survives in both the Cretan linear classes.

The simple linear H, however, has a very early tradition in Crete, since it occurs on the Phaestos whorl (P. L. 3 b).

[1] See above, p. 86, and p. 87, Table V.

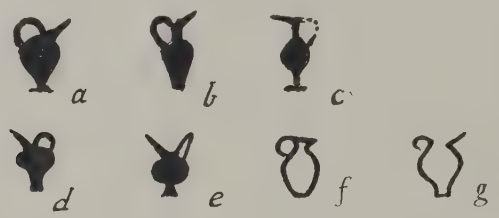
[2] See above, p. 90.



46. *a*, P. 50 a ; *b*, P. 44 c ; *c*, P. 80 a ; *d*, P. 89 a.

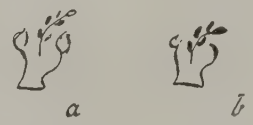
Fence or trellis-work. On the clay impression P. 50 a it is coupled with the forepart of a pig; on the four-sided seal P. 44 c with the gate and vase (No. 47); on one of the clay labels on which the graffito form occurs (P. 89 a) it is coupled with an animal's head, apparently a pig's. It looks as if it had the ideographic sense of 'enclosure' or 'yard'.

Utensils, Stores, and Treasure.



47. *a*, P. 5 b (cf. P. 9); *b*, P. 4 c, C. P. 12; *d*, P. 44 d; *e*, P. 42; *f*, P. 117 c; *g*, P. 87 b.

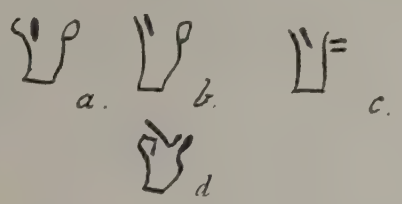
Jug with beaked spout (*prochous*). Groups of three of these vases are frequent on prism-seals of Class A, where they are an inheritance from the more primitive pictographic group. The object had obviously an independent ideographic sense, and the recurring group of three vases recalls the frequent repetition of the Egyptian 'lute' sign *nefer* = good, in an amuletic sense. On the amethyst scarab P. 9 a vase of this type is seen on either side of the disk with revolving rays (No. 108). The linear simplification *f*, which resembles a jug in section, is paralleled by the 'grain jar', No. 50 below.



48. *a*, P. 111 c; *b*, P. 112 a.

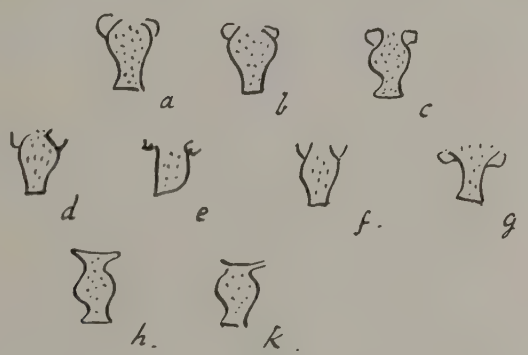
Two-handled vase with olive spray. The outline of the vessel closely resembles certain varieties of the preceding, but in place of grains we see here a spray of some kind of plant, apparently an olive, placed within the mouth. It is possible that this was intended to signify that the vase was used for oil.

This sign is only found on the clay bars P. 111, 112, presenting very similar inscriptions. On face *b* of P. 112 a a double spray, probably of an olive-tree, stands by itself.



49. *a*, P. 111 d (cf. P. 107 c); *b*, P. 87 b; *c*, P. 77; *d*, P. 111 a.

This sign seems to be a handled vessel, the contents of which are indicated by a dash. It obviously belongs to the same class of signs as the preceding. Type *b* is possibly a simplified variant of *a*; *d* is substantially the same sign, but with an angular stroke in its opening.



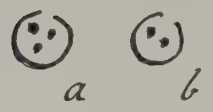
50. *a*, P. 102 a; *b*, P. 109 a; *c*, P. 76 a; *d*, P. 52 a; *e*, P. 89 b; *f*, P. 101 c; *g*, P. 90 a; *h*, P. 118 d; *k*, P. 118 *c*.

The 'grain' or 'honey jar'. This jar is here seen in section, as Nos. 48 and 49, with dotted markings within. Types *a*–*g* show two-eared jars, but *h* and *k*, in which the mouth is closed, appear to be earless. That the latter type, however, represents essentially the same sign may be gathered from its repetition in the same formula with the double axe and zigzag as the others (cf. P. 103 d, 109 a, and 118 c, d).

It is noted below that in the case of a version of the 'bee' sign, No. 86 *e*, grains are similarly indicated within the outline of the insect's abdomen, and may possibly be taken as an indication of the honey that it contained. This gives us some warrant for believing that the grains in the case of the jars may also indicate honey.

51. P. 91 a.

This sign resembles a funnel-shaped vessel with a projecting handle. Grains are indicated within it, as in the preceding.



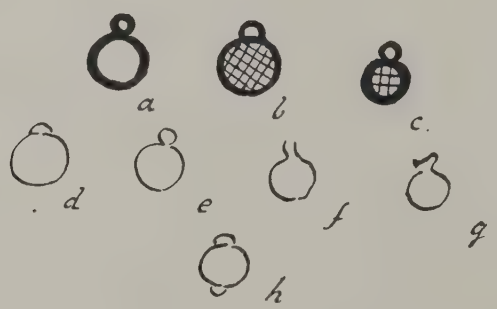
52. *a*, P. 101 b; *b*, P. 101 b.

Measure of grain. The circle with three, four, or, more rarely, two dots is found in the Linear Class B, and is there specially connected with horses and other animals. From the analogy of the Egyptian ⊛, indicating corn on the threshing-floor, it may be taken to represent a fixed quantity of grain. The Egyptian ⊛ sign, signifying 'grains of offering', also affords a close comparison. In the present instance *a* and *b* and an imperfect sign are grouped with the plough.

The sign is also found in the Linear Class A.

53. P. 115 b.

Possibly a barrel or store jar ('*pithos*'). The cross lines may indicate the hoops of the barrel or the raised cordons which run round the great Minoan store jars. The figure only occurs once, in company with the cruciform sign (No. 112), on the fragmentary clay bar P. 115 b.



54. *a*, P. 26 d (cf. P. 68 a); *b*, P. 39; *c*, P. 30 b; *d*, P. 94 a; *e*, P. 94 b, &c.; *f*, P. 54 b; *g*, P. 105 a; *h*, P. 75 b.

This sign apparently represents a kind of sieve or strainer—possibly a cheese strainer or a colander. It is of frequent recurrence and is not infrequently associated with the arrow sign (No. 13). Thus it occurs in groups with the arrow and mallet (P. 68 a, 94 a) and the arrow and 'zigzag' (P. 39, 105 a). On P. 94 b it is seen with the 'zigzag' and the 'plough'. It is also coupled with the cruciform sign (No. 112) on P. 26 d and 85 b. On the latter it is repeated.

Type *h* shows a variant with two handles.

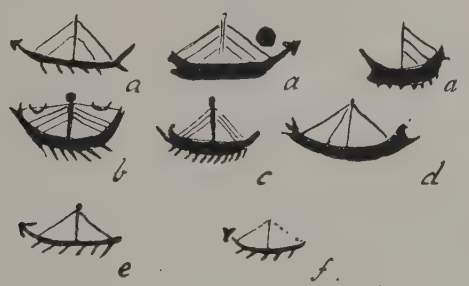
55. This figure occurs on the early lentoid P. 12, together with the vase (No. 47 *c*) and the tree sign (No. 97 *b*). It seems to represent some kind of utensil.

56. P. 13 b.

This seems to be the 'ingot' sign, very frequent on the tablets of the Linear Class B.[1] A deposit of bronze ingots of this form was found in the Royal Villa of Hagia Triada.[2] Other similar ingots have been found in Sardinia, Cyprus, and at Macarska in Dalmatia.[3]

In my earlier work on the Cretan Pictographs [4] I had suggested that the sign might represent an archaic form of the double axe, but in view of other recent finds the above attribution is far more probable.

Ships and Marine Objects.



57. *a*, P. 4 a; *a**, P. 4* a; *a***, P. 4** a; *b*, P. 27 a; *c*, P. 63 a. 1; *d*, P. 26 a; *e*, P. 100 d; *f*, P. 100 a.

The ship. Types *a*, *a*, *a* belong to the more primitive class, A. There is absolutely no trace of any rigging aft on the last of these.

The appearance of a disk above the prow of the second example and of two crescents on *b*, athwart the upper part of the rigging on either side of the mast, can hardly be an accidental coincidence. We seem to have here signs of time, connected with the duration of voyages. The two crescent moons would in this case signify two months, the disk perhaps a yearly voyage of still greater length.

The number of oars indicated on these vessels varies from five to eleven. In the latter case two may be steering oars. The ships show a high stern and the prow terminates either in a barbed point or a kind of open beak. In form these vessels

[1] See A. J. E., *Minoan Weights and Mediums of Currency* (*Corolla Numismatica*, pp. 355 seqq.).

[2] R. Paribeni, *Rendiconti della r. Acc. dei Lincei*, XII, pp. 317 seqq. &c.

[3] *Minoan Weights*, &c., p. 360.

[4] p. 35 [304], No. 9.

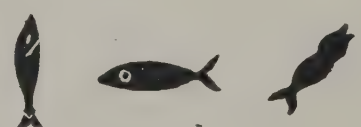
show a great resemblance to those which appear on a Late Minoan class of lentoid gems found in Crete. One, of black steatite, in my possession, shows a ship with fifteen oars. Another type of vessel, repeated on amygdaloid gems of summary execution, is provided with two masts. The open 'beak' in some of these figures may recall the swan-headed ships of the confederate invaders of Egypt from the 'Great Green Sea' in Rameses III's time as seen on the frescoes of Medinet Habu.

The 'ship' appears as an ideograph standing alone on the seals of Class A. On P. 26 a it is preceded by the 'tree' sign, No. 97, and followed by four repetitions of the same. On P. 63 a. 1 and 100 d we see it brought into connexion with the double branch (No. 101). On P. 100 a it is placed between the zigzag or 'serpent' (No. 84) and the 'sepia' (No. 60), and on P. 27 a it is grouped with the cross and mallet.

The type with the rigging only on the forepart of the ship is of interest in relation to the later simplification of this sign. A character of the linear script, Class B, represents only the forepart of a vessel.

The fact that late intaglios exist showing two-masted vessels makes it possible that another version of the ship sign is to be detected in No. 116 below, with the prow-like projection at one end and double or treble prominences, suggestive of masts and sails. This figure, however, has been here included among the more enigmatic characters.

58. Hippocamp. This sign is twice repeated on face *a* of P. 3, the 'trowel' sign (No. 18) occurring on the succeeding side. The sea-horse is also seen on pictographic seals of the more primitive class (F. D. p. 322, Pl. II, 9 c, and cf. 13 a, where two are conjoined). This appears to be the *Hippocampus guttulatus brevirostris* of the Mediterranean, which in a modified form seems to have supplied many sea-monsters to later Greek art. The head and neck of a similar sea-monster—the prototype of Skylla—are seen attacking a boat, on a seal-impression from the Temple Repository at Knossos.[1] Two hippocampi are also seen on the transitional Cretan stone now in Copenhagen Museum. In Crete this marine animal was specially chosen as a symbol by the inhabitants of Itanos at the easternmost corner of the island, where two confronted hippocampi form the principal types on the reverse of its fifth-century coins.



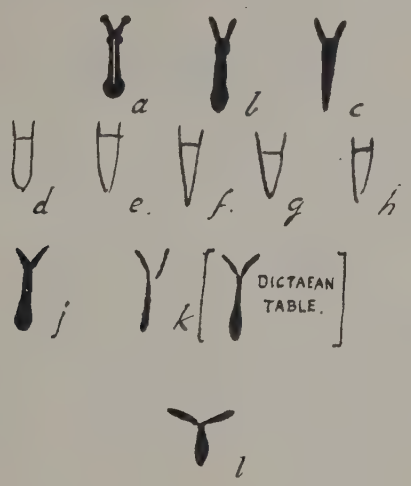
59. *a*, P. 16; *b*, P. 28 a; *c*, P. 45.

Tunny fish. The general outline of *a* and the tail of *b* are characteristic. On

[1] 'Knossos', *Report*, 1903, p. 58, Fig. 36.

P. 28 it stands alone as an ideograph, on the seal-impression P. 45 it is grouped with the eye and the trowel.

What seems to be the same fish is held up on a line by a fisherman on the haematite gem, probably of Minoan fabric, in the British Museum (Cat. No. 80). Similar fish, sometimes in pairs, are seen on a series of Late Minoan gems found in Crete. They already occur in groups of three on the primitive class of pictographic prism-seals from Crete (C. P. p. 70, Fig. 59 c; F. D. Pl. I. 8 c).



60. *a*, P. 34 (cf. P. 38); *b*, P. 27 c; *c*, P. 26 d; *d*, P. 93 b; *e*, P. 106 a (cf. P. 108 a, 110 a); *f*, P. 100 a; *g*, P. 80 a; *h*, P. 61 b (cf. P. 68 b); *j*, P. 41 b; *k*, P. 95 a; *l*, P. 14.

In this frequently repeated sign I venture to recognize the small eatable sepia or *Kalamari* of the Mediterranean (French, *calmar*). The name is derived from the resemblance to a reed-pen case (καλαμάριον). The short tentacles are not separately reproduced, but their double division is rendered by the forked upper end of *a* and *b*. On *a* there seems to be an indication of the eyes and of the broadening of the lower extremity of the body.

The *Kalamari* is still the greatest marine delicacy of Crete, Greece, and Southern Italy. As its principal 'fruit' it may have perhaps been taken as a symbol of the sea itself or perhaps of a sea haven.

The linear types divide themselves into two distinct families, one represented by *d–h* and the other by *k*. This latter type, which only occurs on the somewhat roughly executed graffito group of P. 95 a, stands in close relation to a common sign of the Linear Class A. In a glyptic form, closely approaching *a* and *b*, the same character is seen twice repeated on the Dictaean Libation Table (see p. 15). The duplication of the sign on the Libation Table is paralleled by P. 41 b, where it occurs twice—at the end of one line and the beginning of another—after the bird (No. 89) and libation vase (No. 40).

In two cases (P. 27 a and 80 a) the present sign is grouped with the 'zigzag' or

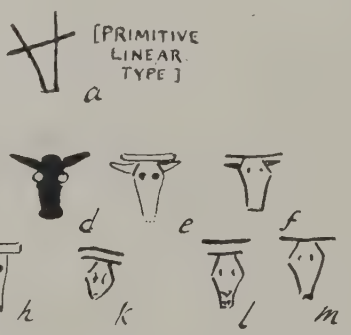
'serpent' (No. 84) and the cross pommée (No. 112). In two other instances (P. 108 e, 116 a) it is coupled with the cross pommée and ⅄. It occurs with the 'serpent' in juxtaposition with the lily-crested lion's head on P. 34. On P. 38 it is collocated with the 'mallet' and goat's head, and on P. 110 a with the 'mallet' and arrow-head in connexion with the 'mountains' or territorial sign No. 114.

Animals and their Parts.

61. Rude figure of an ox on the primitive 'tabloid' P. 13 a.

62. *a*, P. 6 c; *b*, P. 19 a.

Ox-head seen in profile. Type *a* is associated with two goats' heads on a prism-seal belonging to Class A. The somewhat longer and more curving horns of type *b* may show that it belongs to an animal of the *Urus* breed. This type is associated with the human leg and gate.



63. *a*, P. L. 5 (on early pendant); *b*, P. L. 3 (Phaestos whorl); *c*, P. 21 a; *d*, P. 21 c; *e*, P. 92 a; *f*, P. 83 a; *g*, P. 58 b; *h*, P. 63 b; *k*, P. 65 b; *l*, P. 50 b (cf. P. 65 b); *m*, P. 91 a (cf. P. 64 c, 107 a, b, &c.).

Ox-head. It is noteworthy that the facing ox-head type of the Middle Minoan Age is very different from the bovine type with long curving horns prevalent during the Late Minoan Period. The latter certainly belongs to the *Urus* or aurochs' stock. The animal on the hieroglyphs, on the other hand, is short-horned. This seems to be an indigenous species of which skulls were found in the votive deposits of the Dictaean cave and to which Professor Boyd Dawkins has given the name of *Bos Creticus*. It is allied to the *Bos longifrons* or 'Celtic Short-horn'.

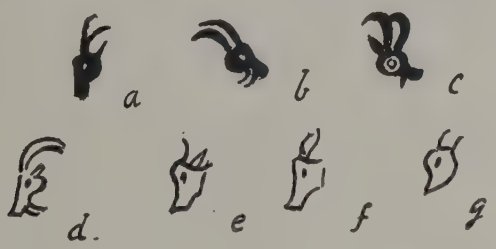
Type *a* represents a primitive linear type of this sign seen on the steatite pendant Pl. I, P.L. 5, which curiously resembles the ox-head sign that survived in the Phoenician *aleph*. The early geometrical type *b* is from the Phaestos whorl.

On P. 83 a and 107 b we see the ox-head associated with the forked spray (No. 101), apparently of an olive-tree, and the store-house on piles (No. 43). On P. 107 a it is grouped with the olive spray and the double axe, which on P. 83 a is replaced by a single axe. On P. 21 a we see it followed by the 'horns of consecration' (No. 37).

a *b*

64. *a*, P. 51 a; *b*, P. 54 a, 2; P. 30 b, c.

Calf's head. Those on P. 30 are very rudely engraved.



a *b* *c* *d* *e* *f* *g*

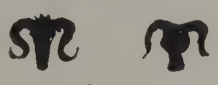
65. *a*, P. 6 a; *b*, P. 28 b; *c*, P. 38; *d*, P. 76 c (cf. P. 94 a, 76 b, &c.); *e*, P. 107 d; *f*, P. 108 a (cf. P. 93 a, 113 a); *g*, P. 104 a.

The goat's head is of constant recurrence. In three places it is placed between the 'plough' and 'arrow' sign (P. 76 b, 93 a, 108 a), and on P. 94 a it appears with an arrow alone.

It is impossible to say whether the sign refers to the wild goat or Cretan *Agrimi* or to a domesticated variety. On P. 76 b it is coupled with the double axe.

66. P. 22 b.

A kid or doe. This is coupled with the single axe on P. 22 b. The sign shows a good deal of resemblance to the Egyptian *ib*, which also represents a kid skipping and bears the ideographic sense of 'to thirst'.

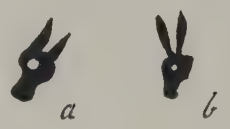


a *b*

67. *a*, P. 7 *bis* b, c; *b*, P. 72 a.

Head of horned sheep. This is perhaps the moufflon, representations of which

occur on Late Minoan gems. Type *a* occurs on two sides of a prism-seal of Class A, in one case by itself, in the other duplicated. The remaining side of the seal shows the human leg and gate. Type *b* is from the impression of a 'signet'.



68. *a*, P. 29 a ; *b*, P. 26 d.

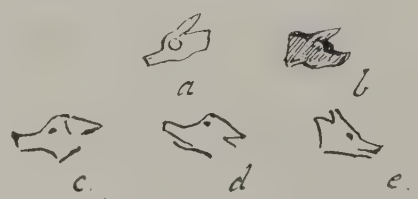
Apparently an ass's head. Compare the characteristic Hittite sign (Wright, *Empire of the Hittites*, Plates VIII, IX, X, XI, and XIX. 5, Jerabis).

69. The pig or boar as a whole figure occurs in association with the gate on P. 22 a. It is also found as an ideograph on prism-seals of the more primitive class.

70. Fore-part of an animal grouped with the fence (No. 46) and rayed disk or 'star' (No. 107 *c*) on the impression P. 50 a. It should probably be interpreted as the fore-part of a galloping boar.

71. Dog crouching as it about to spring. This figure appears by itself on face *b* of the prism-seal P. 1 belonging to Class A. Face *a* of this seal shows the leg and gate formula.

The complete figure of a crouching dog is not infrequent on the more primitive class of Cretan hieroglyphic seals. It looks as if in the later hieroglyphic series it had been replaced by the dog's head sign (No. 72).

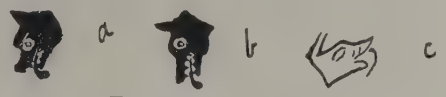


72. *a*, P. 21 c ; *b*, P. 73 a ; *c*, P. 86 a ; *d*, P. 89 a ; *e*, P. 62 b.

Dog's head. This head does not show the fangs and protruding tongue of No. 73, and may reasonably be identified with a mastiff of the class that frequently appears

on the Minoan gems, often with collars round their necks. A seal-impression from Knossos shows two large dogs of this class, with yokes like those of oxen, attended by a youth wearing a crown with peacock plumes. Probably the dog was sacred to the great Minoan Goddess, as later to the Aphrodite of Eryx.

On P. 89 a the dog's head is associated with the fence (No. 46), on P. 62 b with the gate, on P. 86 a with the double axe, on P. 73 a with the arrow and 'trowel' formula.



73. *a*, P. 40; *b*, P. 44 a; *c*, P. 115 a.

Wolf's head with protruding tongue. This sign appears on P. 44 with the arm holding a curved instrument (No. 16) and the forked branch (No. 99), but standing by itself and separated from them by the cross mark. It also appears as the solitary type on the fine signet P. 40, which further proves that it could be used by itself as an ideograph. In this case it possibly represents a personal name or 'canting badge' (see below, p. 264). In its graffito form it is associated with the cross pommée (No. 112) on the fragmentary bar P. 115 a.

This symbol shows a remarkable likeness to the Hittite (Jerabis, *op. cit.*, Pl. VIII. D, l. 3, Pl. IX, l. 3), where again we find the same protruding tongue.

74. Lion's head facing, surmounted by the sacred fleur-de-lis of Minoan cult. This sign is grouped with the zigzag or 'serpent' (No. 84) and the sepia (No. 60) on the signet P. 34. It may be a 'canting badge' or sign representing the name—in this case a compound one—of a Minoan prince, and the first part of which was formed by the word 'Lion'. (See below, p. 264.)

75. *a*, P. 23 a; *b*, P. 36.

Cat. This pictorial sign appears in connexion with the official formula ☤, leg and gate, together with 'the serpent', on the fine prism-seal P. 23. The head and tail and clearly indicated claws leave no room for doubt that we have here a cat, perhaps the *type parlant* of a Minoan prince whose title follows (see below, pp. 264, 270, 271). Type *b*, on a signet, seems to be an inferior variant of the same sign.

76. Apparently the head and neck of a long-necked animal. Coupled with the cross (No. 112) and human eye on P. 103 b.

77. Apparently an animal's foreleg and shoulder. On P. 110 b, associated with the saffron (No. 88). It bears a distinct resemblance to the Egyptian sign *khepsh* = 'shoulder', and thus in a derivative sense 'strength of arm'.[1] (See Table XVI, *g*, p. 240, below: from the Mastaba of Ptahhetep, Fifth Dynasty).

a

b

78. *a*, P. 37; *b*, P. 35.

Horned owl seated. The horns are much exaggerated. On P. 37, and again apparently on P. 35, this is grouped with the fleur-de-lis spray.

79. Dove pluming its wings. The sole type on P. 31 a. This is also possibly a personal badge of the 'canting' kind (see below, p. 264). The dove was sacred to the great Minoan Goddess.

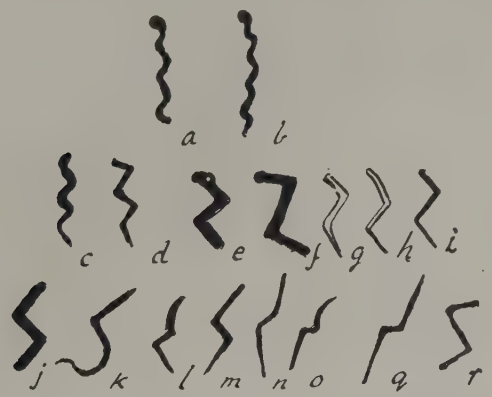
80. Bird seated, perhaps an owl or crow. On P. 41 b between libation vase (No. 40) and sepia (No. 60).

81. Waterfowl, perhaps swan, in the act of taking flight. On the clay impression P. 51 b with 'mallet' and arrow.

82. The duck sign is found on the pottery stamp from Palaikastro, P. 43.

83. Bird's head. Grouped with the 'horns of consecration' (No. 37) and ox-head on P. 21 a.

[1] Griffith, *Hieroglyphs*, p. 17.



84. *a*, P. 23 a; *b*, P. 122 b; *c*, P. 118 a; *d*, P. 118 b, c, d; *e*, P. 39; *f*, P. 27 c; *g*, P. 109 b (cf. P. 90 a, b); *h*, P. 109 a; *i*, P. 103 d; *j*, P. 34; *k*, P. 26 c; *l*, P. 105 a; *m*, P. 116 c (cf. P. 94 b); *n*, P. 80 a; *o*, P. 54 c; *q*, P. 105 b; *r*, P. 100 a.

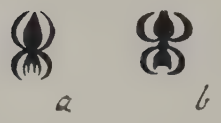
The serpent. The original form of this sign is best seen on the fine prism-seal P. 23 and on the archaic Berlin tablet P. 122. The angular simplification of this sign into a mere zigzag is illustrated by a variety of intermediate types and by the occurrence of both the serpentine and angular forms *c* and *d* on P. 118. The form represented on the latter tablet with five sections is in turn identified with the simpler type showing only three by the recurrence of both in the same formula, associated with the double axe and 'grain jar' (No. 50) or with the double axe alone (cf. P. 84 b, 89 b, 103 d, 108 a, and 109 b).

This angular modification is paralleled by the process observable in the curving stalk of the 'saffron' sign (No. 88). In that case the natural curves of types *a* and *b* become in *d* a mere zigzag.

On the signet with the cat device (P. 23 a) the 'serpent' supplements what seems to have been an official title (see below, p. 270) composed of the 𓌙, leg and gate. The snake appears in the Palace shrine and elsewhere as an attribute to the Minoan Mother-Goddess, probably in her chthonic aspect. In this connexion its frequent grouping with the double-axe sign on the above-mentioned formulas is certainly suggestive.

Elsewhere we see it associated with the arrow (P. 104 d, 109 b), with the cross pommée (No. 112), the 'sepia' (P. 27 c, 80 a), and sieve, No. 54 (P. 39, 94 b). On P. 34 it is grouped with the 'sepia' (No. 60) and the lion's head surmounted by a fleur-de-lis, which is possibly a princely badge.

Insects.



85. *a*, P. 1 c; *b*, P. 29 b.

The spider. Type *a* appears by itself on a prism-seal of Class A; *b* is attached to the 'trowel' and 'adze' formula.

The spider is also very frequent on the more primitive class of pictographic seals (see F. D. pp. 332, 333). This is the more remarkable when it is remembered that this insect is conspicuous by its absence on the engraved stones and coin types of the classical period of Greece, though other insects, such as the ant, the bee, or the cicada, are common enough. In Greek mythology the spider appears in the legend of Arachnê as the representative of Lydian textile art, and with that old Anatolian race this insect evidently typified the spinning industry. The undoubted affinities between the earlier indigenous elements of Crete and those of Western Asia Minor make the prominence of the spider in its primitive pictographs the more suggestive, and we may infer that here, too, the insect as a symbol indicated the possession of looms.

The spider, which also seems to have possessed a talismanic virtue, occurs with the scorpion, snake, and human hand on a heart-shaped pendant of gold from Hagia Triada, which doubtless served as an amulet.[1] The spider also occurs on the primitive class of Egyptian cylinders referred to above, and on a Libyan bead-seal from near Constantine published by me, F. D. p. 368, Fig. 32.

86. *a*, P. 75 a, 1; *b*, P. 20 b; *c*, P. 54 b; *d*, P. 86 b; *e*, P. 76 a.

The bee. The large abdomen and the indications of the proboscis enable us to identify the insect with great probability. The grains introduced within the outline of the abdomen on *e* recall those seen in the sections of the jars given under No. 50. If in the case of the insect this may be taken to indicate honey we also possibly obtain a clue to the contents of the jars.

The bee in ancient Egypt was one of the earliest signs of royalty. *Byty*, represented by the bee sign, occurs in the Royal title with the meaning 'he that belongs to

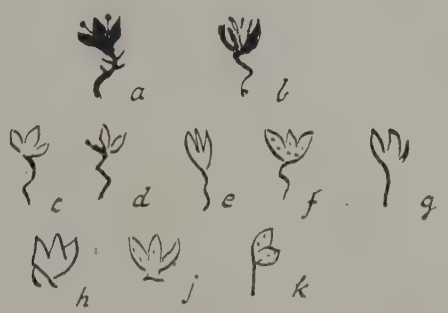
[1] Paribeni, *Sepolcreto di Haghia Triada* (*Mon. Ant.*, 1905 [XIV], pp. 64–6).

the bee' or, perhaps originally 'the Bee-Keeper'. A high official also had the title of 'Sealer of the Honey [jars]', perhaps the oldest Egyptian title.[1]

It is, therefore, specially interesting to find the bee coupled with the 'Palace' sign (No. 41) on the sealing P. 75 a and on P. 20 b grouped with two recurring formulas which there is good reason to regard as royal titles.[2] On P. 86 b it is associated with a spray or flower with speckled leaves. On P. 54 a it is collocated with the sieve (No. 54) and followed by the 'trowel' and eye formula. On P. 76 a there stand in connexion with it an animal's head, a heart-shaped figure with grain (No. 93), and the 'gloved hand' (No. 9 *b*). The latter article, as already suggested, may have been a special badge of the bee-keeper's industry.

Plants and Trees.

87. An uncertain flower, probably a lily with recurved petals. The sign appears by itself on the clay label P. 81 b.



88. *a*, P 31 a; *b*, P. 81 a; *c*, P. 110 a; *d*, P. 86 a (cf. P. 100 b); *e*, P. 85 a; *f*, P. 109 b; *g*, P. 54 c; *h*, P. 121; *j*, P. 104 d; *k*, P. 86 b.

To judge by the more detailed reproduction on the Minoan frescoes this flower, with the stamens on either side of the central petal, is rather the crocus or saffron than the lily. It appears in a very similar shape on the early wall-painting of the 'Saffron Gatherer' from the Palace at Knossos. The flower had, no doubt, a distinct commercial value and supplied the dye which produced the brilliant yellow robes like those of the dancing women on one of the Knossian Miniature Frescoes.

[1] See Newberry, *Scarabs*, pp. 30, 31, and p. 239, below.

[2] See below, § 15.

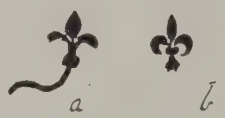
The lily, which evidently had a religious value in Minoan cult, is distinguished by its two highly recurved side petals. It is this latter flower in a conventionalized form that appears as the crest of the lion's head, No. 74 above.

On P. 86 a, 100 b, and, apparently, 81 a, this sign is associated with the 'plough', on P. 85 a with the human leg and arms. It is found once with the 'mallet' and serpent (P. 54 c) and once with the Ψ-sign and serpent (P. 104 d). On the Phaestos Tablet it appears among other vegetable signs, prefaced by ʃ and followed by numbers. It had there certainly an ideographic value, as referring to the plant itself.

It is possible that *k* represents some other plant.

89. This sign, which appears on the clay label P. 86 b in association with the mallet, certainly seems to represent a different flower from the preceding.

It bears a resemblance to a peony, the medical qualities of which were celebrated in antiquity. The peony itself grows wild in Crete. I have seen plants with exceptionally large flowers in the glens of Mount Dicta.



90. *a*, P. 37; *b*, P. 34 (combined with lion's mask).

The fleur-de-lis. Type *b*, which probably represents the most correct form of the sign, rises from the summit of the facing lion's head or mask (No. 74). *a* is seen beneath the horned owl on the signet P. 37.

The sign is perhaps rather a conventionalized form of the iris than of the lily. Like the lily itself it seems to have had religious associations in Minoan art.

Compare the Hittite *Hamath* (Wright, *op. cit.*, Pl. IV, ll. 2 and 3).

91. This sign is grouped with the double axe and gate on P. 29 d. It is probably a conventionalized flower of a kind seen on seals of the primitive pictographic class. The quatrefoil that forms its central element closely corresponds with the four-petalled flower which is the Egyptian word sign for *wn* = 'to open'. This became later a plain four-limbed cross.[1]

[1] Griffith, *Ptahhetep*, p. 24.

92. *a*, P. 11 c (Class A, 1); *b*, P. 6 a (Class A); *c*, P. 23 a, &c.; *d*, P. 20 c; *e*, P. 30 d; *f*, P. 18 c; *g*, P. 28 c, 77, &c.; *h*, P. 28 c; *j*, P. 64 b; *k*, P. 103 a, &c.; *l*, *m*, graffito inscriptions, *passim*.

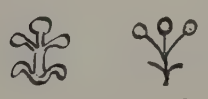
The Ψ, or *psi* sign as it may be conveniently termed, represents a plant. We have here a striking example of the process already noted above (p. 113), by which the simple linear forms of primitive graffito pictography are brought to life as it were by the more advanced glyptic style. Whether types *a* and *b*, both belonging to Class A, were intended to stand as a vegetable form or not would have remained doubtful. But in types *d*–*g*—found associated with the same 'leg and gate' formula on P. 10 b—we see the progressive reaction of the ideographic sense of the figures transforming their simple traditional outline. Shoots spring from the sides of the stem, and triple fruits and flowers rise from the summit.

In *l* and *m*, on the other hand, the influence of the graffito style again asserts itself, and there is a reversion to the old Ψ-like form. Ψ of the later Linear Classes A and B is practically identical with this.

It will be seen that the present sign forms part of recurring formulas which seem to represent official titles (see below, § 15). In the one case it is grouped with the human leg and the gate, in the other with the Ψ (No. 30) and 'template' (No. 19). The plant itself must evidently have played an important part in Minoan economy.

Fig. 100. Early Tetradrachm of Cyrene.

The possibility must not be altogether scouted that we have in this, as in the succeeding sign (No. 93), a reference to the silphium trade. The silphium plant was surmounted by three globular clusters of flowers, of which the central one is generally shown much larger than the other two. On archaic tetradrachms of Cyrene, as shown in Fig. 100,[1] the three globular bunches appear as of equal size.[2] In later, summary representations the same is the case, and types like the annexed, taken from small figures of silphium in the field of Cyrenaean coins,[3] show a distinct approximation to certain forms of the present character.



a *b*

This sign occurs twice with the 'saffron', No. 88 (P. 104 d, 110 a),

[1] L. Müller, *Numismatique de l'ancienne Afrique*, I. p. 9, No. 2. The reverse of this coin is irregularly incuse.

[2] So, on a gem in my own collection exhibiting a silphium plant between two storks, three shoots with globular flower bunches of equal size proceed from the upper part of the plant. The gem is a chalcedony scarabaeoid of the latter half of the fifth century B.C. and was found at Ithomê in Messenia.

[3] *Op. cit.*, p. 89, Figs. 334, 339.

and twice with the 'mountains' or territorial sign (P. 77, 103 c). In the case of P. 77 it is also accompanied by the jar, No. 49, associated on P. 87 b with the 'silphium fruit' (No. 93), and on P. 52 b it is seen with the 'grain jar'.

A Hittite sign may be compared with this, which occurs at Jerabis,[1] in a more floral, and also in a geometrical form[2]; while at Bulgar Maden[3] it forms a purely linear sign . The same, or a closely allied symbol, is also seen on the lion of Marash.[4]

93. *a*, P. 87 b (cf. P. 111 a); *b*, P. 98 b; *c*, P. 76 a.

Heart-shaped figure with specks or grains; possibly the heart-shaped fruit of the silphium plant. This sign occurs on P. 87 b with two jars such as No. 49. On P. 111 a it is grouped with and the revolving star (No. 108), following a similar type of jar. On P. 76 a it is associated with the 'glove', an animal's head, and the bee. The specks enclosed in this figure may indicate either seeds or some other edible product. In the case of the bee and the jar (No. 50) it is suggested that they represent honey. In No. 51, above, similar dots are seen within a circle, and a closely parallel sign of the Linear Class B (where it is associated with horses) resembles an Egyptian hieroglyph signifying grain, or corn for horses.

What then is this heart-shaped object containing presumably edible grains?

The suggestion is offered that we have here the heart-shaped fruit of the silphium, the grains indicating the seed within. On early hemidrachms of Cyrene this fruit is represented as in Fig. 101,[5] together with grains around representing the seeds.

Fig. 101. Early Hemidrachms of Cyrene.

Considering the evidence of very early connexion between Crete and the opposite Libyan coast and the importance of the silphium trade in the early historic period it seems by no means impossible that it formed an article of import in Minoan times.

The climatic approximation between the Cretan highlands and those of Cyrene

[1] Wright, *Empire of the Hittites*, Pl. VIII. B, l. 5.
[2] *Op. cit.*, Pl. XIX. l. 6.
[3] Ramsay and Hogarth, *Prehellenic Monuments of Cappadocia*, Pl. II. l. 5, beginning.
[4] Wright, *op. cit.*, Pl. XXVII, III. col. 1, end.
[5] L. Müller, *Numismatique de l'ancienne Afrique*, I. p. 12, Fig. 30.

makes it possible that, like many other North African plants, it was indigenous in the island, but there is no evidence of this. So far as is known the silphium is now extinct, and all that is clear is that it was an umbelliferous plant, resembling the *Narthex* of North Cashmir.[1]

94. *a*, A glyptic form of this sign occurs as the sole type of a seal-impression found at Knossos; *b*, P. 50 c; *c*. P. 121 (cf. P. 52 c, 65 c); *d*, P. 85 b; *e*, P. 82 b; *f*, P. 62 c.

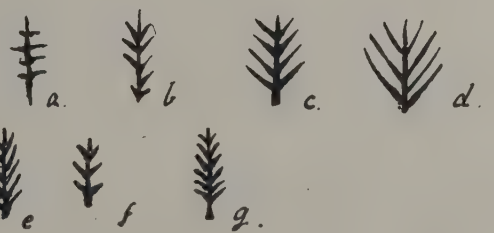
This is apparently a corn-grain in flower.

This character is purely ideographic, being found either alone or accompanied by numbers. Thus on P. 82 it is followed by the number 3, on P. 85 b by 32, on the Phaestos Tablet by 20. On this tablet the present sign is one of a series of vegetable forms. At the beginning of the tablet what seems to be a less perfect variety than that given in *c* is preceded by the 'gate' and 'double eye', which probably form a separate introductory sign-group.

95. P. 20 b.

Perhaps an ear of barley.

96. Apparently a gourd or pod. This sign is only found on P. 26 c. It is there grouped with two trees and an uncertain sign, perhaps the sieve (No. 54). The figure shows a certain resemblance to some forms of the Egyptian Carob-pod sign (cf. Griffith, *Hieroglyphs*, Pl. V. 57).



97. *a*, P. 13 b (Class A); *b*, P. 12 (Class A); *c*, P. 26 b, c; *d*, P. 122 b (Berlin); *e*, P. 85 a; *f*, P. 83 b; *g*, P. 46 b.

Tree with ascending branches. It is repeated six times on P. 26 a, combined with the 'ship' and 'arrow', and recurs twice on face *c* of the same seal. On P. 83 b it is coupled with the 'gate' and on P. 85 with the 'human leg'. On a Late Minoan lentoid

[1] L. Müller, *op. cit.*, I. 106-9, and Supplement, p. 18.

gem from the Idaean Cave, now in the Museum at Candia, a votary is seen blowing a conch-shell before an altar, behind which is a sacred grove with trees in the same conventional style. Similar degenerations of the sacred tree occur on Cypriote cylinders.

98. *a*, P. 8 a (Class A); *b*, P. 78 a.

The parallel branches. Type *a* stands by itself on a prism-seal of the more primitive class. *b* is grouped with the mallet (No. 24) and goat's head.

This sign bears a considerable resemblance to a Babylonian ideograph.

99. *a*, P. 26 d; *b*, P. 24 c; *c*, P. 44 a; *d*, P. 55 b; *e*, P. 100 d; *f*, P. 102 a; *g*, P. 101 a.

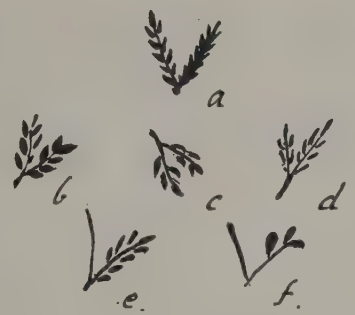
This seems to be a forked branch or double spray, with its foliation only on one side. It was tentatively described in my first work on Cretan Pictographs as 'deer-horns'. It is placed in three instances before the arrow sign (P. 24 c, 101 a, 102 a), in the latter case supplemented by the 'double axe'. It is also coupled with the ship (P. 100 d), the mallet, sepia (P. 26 d), the forearm holding a weapon (P. 44 a), and the gate and ☤.

It is probably a vegetable figure—a kind of forked or bent branch, but the evidence is not clear.

100. *a**, P. 4 b; *a*, P. 39; *b*, P. 121 (Phaestos); *b**, P. 49; *c*, P. 116 c; *d*, P. 101 a, 102 a; *e*, P. 100 d.

Perhaps a palm branch. This sign is distinguished by showing off-shoots on only one side. On the Phaestos Tablet (P. 121) it occurs twice in a series of vegetable signs followed by the number 20. On the signet P. 39 it is grouped with the sieve (No. 54), the arrow, and the 'serpent' or 'zigzag'. It is found twice above the 'human bust' or 'idol' on P. 101, 102, where it is also associated with the arrow, forked branch (No. 99), and the 'Palace' sign.

In general appearance the present spray, though only one side of it is delineated, resembles the palm branch. The culture of the date palm, which still grows within the island, began in very early times. Minoan or Mycenaean Daemons are seen on a gem [1] watering nursling palms.



101. *a*, P. 63 a; *b*, P. 112 b (cf. P. 60 b, 107 a); *c*, P. 104 a; *d*, P. 93 b; *e*, P. 100 b; *f*, P. 103 a.

The olive spray. The resemblance of the better executed of these sprays to the foliage of the olive-tree as rendered on the Minoan frescoes leaves little doubt as to the meaning of this sign. The extensive Magazines of the Palace at Knossos with their huge store jars seem to have been largely devoted to storage of oil, which must have been a principal source of wealth to the Minoan kings.

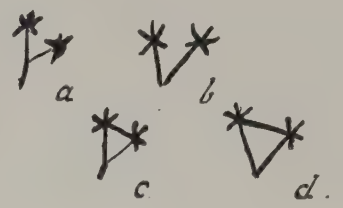
On P. 112 b this sign stands entirely by itself, and must therefore be regarded as an ideograph. On the signet impression P. 63 a two olive sprays are placed in the field above a ship. This may be an allusion to the export of oil from Minoan Crete, probably to Egypt. In two cases, P. 60 b, 107 a, the olive spray occurs in groups containing the double axe, the special sign of the Palace as a sanctuary. On P. 93 b it is collocated with the 'silphium fruit' (No. 93). On P. 107 b we see it with the 'ox-head' and 'store-house' (No. 45), and it is also grouped with the 'ox-head' on P. 107 a.

Types *e* and *f* seem to be simplifications of the same sign.

102. *a*, P. 64 d; *b*, P. 70 b.

[1] See my *Myc. Tree and Pillar Cult*, p. 3, Fig. 1.

Leafy spray. Type *a* might be an olive spray (cf. No. 101). It is placed between the plough and the 'mountains' on P. 64 d.



103. *a*, P. 112 c (cf. P. 113 b); *b*, P. 121; *c*, P. 111 b; *d*, P. 121.

Branch of fig-tree. The characteristic form of the leaf is traceable in *a*, and it is noteworthy that *c* (P. 111 b), in which the leaves have been run together so as to form a purely geometrical figure, occurs after the same linear formula on a tablet (P. 112) which presents a strong parallelism with the other. On the Phaestos Tablet again we see the two alternative forms *b* and *d*.

The fig-tree evidently played a considerable part in Minoan Crete. The special sanctity of this tree is well shown in a steatite vase relief from Knossos, and again on a signet-ring from the same site, in both of which it stands within a *temenos*.[1] But figs had also an importance as an edible product, and from the large size of some burnt specimens found stored in a jar in the Royal Villa of Hagia Triada it would appear that they had been improved by cultivation. On the Phaestos Tablet this sign appears among a series of vegetable forms. It is followed by numbers = 24 and the 'crook'. It is associated with this and other varieties of the 'crook' sign on P. 111, 112, and 113.

104. Possibly another vegetable sign. It is coupled with the 'arrow' on the clay label P. 85 a.

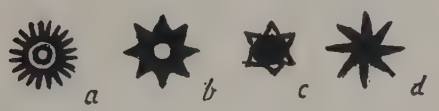
A character of the Linear Class B may be compared with this.

105. Two parallel rods with small shoots or buds at the top. This sign is found on the clay sealing P. 64 b between the pronged instrument (No. 30) and the Y sign. It apparently belongs to the plant series.

[1] See my *Myc. Tree and Pillar Cult*, pp. 5, 6 (Fig. 2), and pp. 72, 73 (Fig. 48).

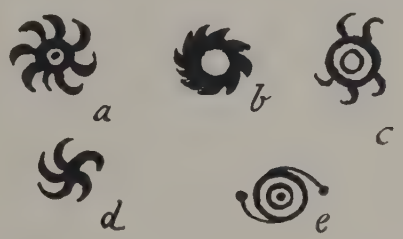
106. Spray in a kind of gable. This sign is coupled with the 'cross pommée' and, apparently, the 'arrow' on the clay sealing P. 59 b.

Sky and Earth.



107. *a*, P. 68 a; *b*, on signet-seal; *c*, P. 50 a; *d*. P. 40*.

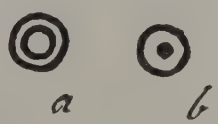
Star or rayed solar symbol. Types *a*, *b*, and *d* occur by themselves on signets: *c* is associated with the 'tence' and 'half-boar' on the seal-impression P. 50 a.



108. *a*, P. 28 b; *b*, P. 23 c; *c*, P. 9 (Class A); *d*, P. 111 a; *e*, P. 25 d.

Day-star or sun with revolving rays. The graffito type *d*, which is grouped with the ♈ (No. 30) and 'silphium fruit' (No. 93), recurs in the Linear Class B. *d*, which is the central sign on the amethyst scarab P. 9, is there imperfectly delineated in order to facilitate its insertion between the two vase signs that accompany it, so that the curving rays are only shown above and below. Type *b* occurs as a small subsidiary sign after the 'adze' and 'trowel' formula on the 'royal signet' P. 23 c.

e may be regarded as a variant of types *a* and *c*.



109. *a*, P. 27; *b*, P. 4* b (repeated five times).

Solar disk without rays. This sign obviously stands in close relation to the preceding. It is, however, hard to distinguish them from certain forms of the eye sign (No. 5).

Type *b* is identical with the Egyptian hieroglyphic for 'sun' and 'day'. It is also the Chinese Sun symbol. Type *a* with the concentric circles resembles forms of the Egyptian *sep* = times (*vices*).

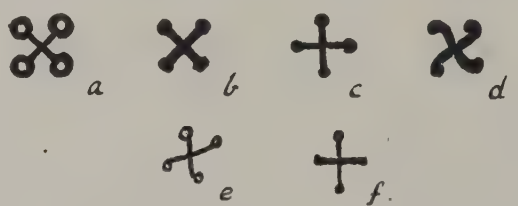
110. This sign might be described as the 'sun and four moons'. It appears with the 'mountains', human arm, and two crescents on P. 25 c.

111. *a*, P. 27 c (cf. P. 25 c); *b*, P. 91 b (cf. P. 110 a); *c*, P. 60 b; *d*, P. 110 b.

The crescent moon. Two crescents which apparently have the value of separate signs appear over the rigging of the ship on P. 27 c. A disk appears over another ship (see P. 4 *a* above). On P. 25 c two crescents are seen above the human arm, and might be regarded as a fill-up motive: the fact, however, that they precede the 'sun and moons' sign (No. 109) makes it probable that they have a lunar significance.

The graffito form *b* is found with the Y and 'saffron' sign (No. 88) on P. 91 b, and with the Y alone on P. 110 *a*; *c* appears between the 'double axe' and 'olive spray' on P. 60 b. This sign must be distinguished from the mere curved stroke which is the form that the unit figure often takes on the hieroglyphic tablets.

The crescent is also found among the signs of both the linear classes.



112. *a*, P. 27 a, c; *b*, P. 26 d (cf. P. 32); *c*, P. 115 a, 77, &c.; *d*, P. 59 a, &c.; *e*, P. 103 b, 104 c, &c.; *f*, P. 103 a.

The cross pommée. The knobbed ends of its limbs distinguish this character from the initial X-sign. It is placed indifferently on its side or upright. In type *d* the limbs are curved so as to present an approach to the *svastika*.

This sign occurs *passim*. In two cases, P. 108, 116 a, it is grouped with the Y and 'sepia' (No. 60), and it twice appears alone with the 'single axe' (P. 83 a, 86 b).

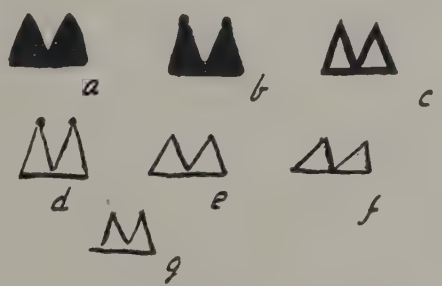
The cross appears as a religious symbol on a series of seals found in the shrine of the Snake Goddess at Knossos, occasionally taking the *svastika* form. It is remarkable that in the same repository an equal-limbed marble cross was also found (see 'Knossos', *Report*, 1903, pp. 88 seqq.). It is also found incised on the Palace blocks.

The simple cross is widely diffused in primitive pictography, notably among the American Indians, as a star sign, and there is evidence (see *op. cit.*, p. 93) that it had the same significance in Minoan Crete.

The equal-limbed cross appears among the signs of the Linear Class A, together with a variant in which the cross-bar is shorter than the upright stem. This latter type was generally adopted in Class B of the linear script.

113. Conjecturally a rain sign, and so = 'water'. This character is only found on the sealing P. 70 b, together with No. 117 below, and the 'branch' or 'tree' (No. 97). The lower stroke is but faintly indicated. It is common in both classes of the linear script. In the latter case the lower stroke is often broken into two or three sections. In the linear series it is sometimes superposed, in an ideographic sense, on certain vessels as if to show what they were intended to hold. There are reasons for supposing that this may have been originally a rain sign and thus in a secondary sense = 'water'.

Vertical lines descending from a more or less horizontal figure representing the 'sky' or 'clouds' are a regular feature in primitive rain signs.[1] The Egyptian hieroglyph for rain (vertical waved lines descending from the 'heaven' sign) may also be compared.



114. *a*, P. 29 c; *b*, P. 25 c (cf. P. 32 d); *c*, P. 26 d; *d*, P. 64 d (cf. P. 96 a); *e*, P. 107 c, &c.; *f*, P. 110 b, c; *g*, P. 103 c.

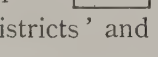
The 'Mountains' or Territorial sign. We have here a widely distributed pictograph for mountains and valleys, and so 'country' or 'land'. On the boss of Tarriktimme (Tarkondêmos) = country.[2] It is found again in Jerabis (Jerablus),[3] and apparently on the monument near Bulgar Maden[4]

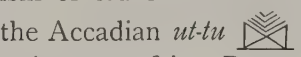
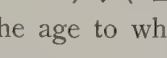
[1] For North American Indian analogies see Garrick Mallery, *First Annual Report of the Bureau of Ethnology*, p. 373.

[2] Sayce, *Trans. Bibl. Arch.*, Vol. VII, Pt. II (1887), pp. 297 seqq.; and cf. Halévy, *Rev. Sémitique*, 1893, p. 55 seqq.

[3] Wright, *op. cit.*, Pl. IX, J. II, l. 1.

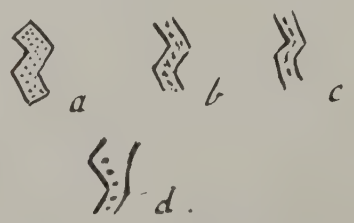
[4] Ramsay and Hogarth, *Prehellenic Monuments of Cappadocia*, Pl. II, l. 2.

The Egyptian *men* = mountains is applied in the same way as a determinative for 'districts' and 'countries'. As  *snut* = granary, it reappears, with one or two heaps of corn in the middle, in the simple sense of a 'plot of ground'. The Accadian symbol, again, signifying a plot of ground, exhibits a form closely parallel to the above.

In this connexion a remarkable coincidence is observable between the pictographic symbolism of old Chaldaea and that of the Cretans of the Minoan Age. The linear form of the Accadian *ut-tu*  shows a sun above the symbol of the ground with a plant growing out of it. But on some Late Minoan gems, side by side with a vessel resembling the libation vase (No. 40), are seen symbolic or conventional representations of the plant growing out of the ground, recalling the Accadian version almost *totidem lineis* . In another case the ewer divides the two symbols  . In the age to which these gems belong the linear script was in use, but certain symbolic types which had probably a religious or talismanic value seem to have been handed down from the conventionalized pictography of the preceding period. It is possible that in Crete this sign denoted the mountain country as opposed to the plain. But its connexion with the 'plough' sign rather points to a more general territorial designation.

As is noted below (see p. 262), this sign is grouped in a special way with the 'plough' (cf. P. 26 b, where the latter sign is several times repeated) and the 'mallet' (No. 24), and the same collocation appears on P. 29 c. On P. 64 d, again, we find it associated with the 'plough' and 'olive leafy spray'.

On P. 96 a it is grouped with the 'mallet', 'arrow', and 'libation vase' (No. 40), and on P. 110 c with the 'mallet', 'arrow', and 'sepia'. In two cases (P. 77, 107 c) it is placed beside a kind of jar (No. 49). On P. 118 a it occurs with the 'arrow' and 'double axe', and on P. 110 b with the 'Palace' sign.

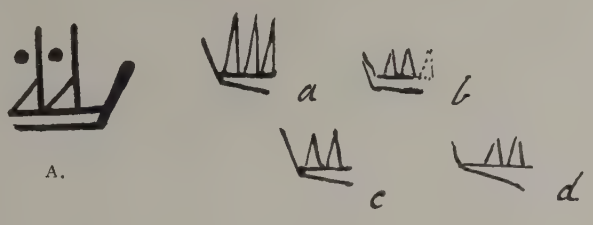


115. *a*, P. 92 b; *b*, P. 109 d; *c*, P. 93 a; *d*, P. 114 c.

Type *a* with the closed ends seems to be the most perfect form of this sign. Its meaning is enigmatic, though the specks within recur in the case of the 'grain jar', the 'silphium fruit', the disk (No. 52), and elsewhere.

On P. 109 d and 93 a this sign is coupled with the 'plough' and numbers; on P. 92 b with the 'sieve' and the 'Palace' sign.

What appears to be a later version of this sign with its parallel zigzags generally reduced to mere **S**-shaped forms and with the intervening dots omitted recurs in both the linear classes.



A. B.

116. A. P. 49* c. B. *a*, P. 87 a; *b*, P. 74 b; *c*, P. 114 b; *d*, P. 113 b.

More especially in its glyptic form, A, this sign resembles the forepart of a ship with a high prow and with two or three masts. On the prism-seal P. 49* c, where it is seen in its glyptic aspect, it shows two disks beside the 'masts', which may be compared with a similar disk in front of the mast of the 'ship' sign P. 57 a*. It is here coupled with the 'trowel' and 'arrow'. On P. 87 a it appears with the 'angle' (No. 42) followed by numbers = 30. On P. 74 b it is seen alone and also on P. 114. On P. 113 b it appears at the end of a sign group containing the 'fig-branch' and two varieties of the 'crook' sign.

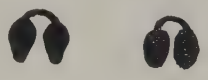
117. This enigmatic sign occurs on the clay sealing P. 70 b, between the 'tree' and the 'rain' sign (No. 113).

118. This sign is grouped with the 'gate' and 'human leg' on the clay label P. 82 a.

119. This somewhat complicated sign is only found with No. 60 *k* and No. 125 on the clay label P. 95 a.

120. This wholly enigmatic character appears on the stamp of the cup handles from Palaikastro, associated with the duck and the jug (No. 47).

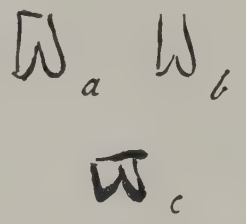
121. This sign is found on P. 111 c after No. 124.



122. *a*, P. 28 b; *b*, P. 51 a.

The meaning of this character remains uncertain. Type *a* is associated with the 'goat's head' and the 'revolving star' symbol, *b* with the calf's head and bee.

This sign recalls the Egyptian hieroglyph for 'kidney'.



123. *a*, P. 102 b; *b*, P. 110 d; *c*, P. 62 b.

This figure somewhat resembles an ω. Type *a* is grouped on P. 102 a with the 'grain jar' (No. 50) and the 'zigzag' or 'serpent'. Type *b* appears on P. 110 d in company with the 'sepia' and the cross pommée; *c* with the 'arrow', followed by the dog's head (No. 72) and gate.

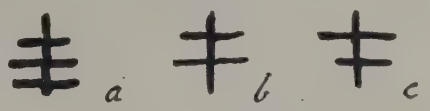
124. *a*, P. 111 c; *b*, P. 87 c.

On P. 111 c this sign is found with another uncertain figure (No. 121). On P. 87 c it is grouped with the 'trowel' before numbers.

125. This sign occurs on the clay label P. 95 a with Nos. 119 and 60 *k*.

126. Uncertain sign, somewhat resembling the stock and barrel of an old-fashioned gun. It is grouped with the single spray and the double axe on P. 100 d.

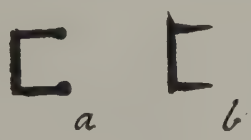
127. This character, the lower angle of which to the right is conjecturally completed, occurs on the four-sided bead-seal P. 44 d. In my former work on Cretan Pictographs it was grouped among floral forms from its apparent analogy to the Hittite as seen on the monument at Ivriz.[1] The dot which occurs above both symbols might be interpreted as representing the head of a stamen or pistil. The identification, however, remains uncertain.



128. *a*, P. 122; *b*, on clay label from Idaean cave; *c*, P. 88 b.

Perhaps a rude linear presentment of a tree with horizontal branches. Analogies for this simple rendering of trees will be found on early Cypriote cylinders, where the figure with horizontal arms alternates with one like No. 97 c with upturned slanting branches. That these two types, however, as Minoan hieroglyphs, bore different ideographic meanings appears from the recurrence of both forms almost side by side on the Berlin Tablet.

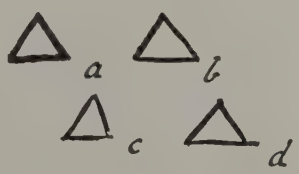
Both the variety *a* with three horizontal bars, and *b* with only two, survive as signs of the two linear classes. Type *b* is also found in the Cypriote script with the signification *pa*.



129. *a*, P. L. 3; *b*, P. 8 b.

Type *a* is found on the Phaestos whorl; *b* occurs with and on the early prism-seal P. 8 b.

A sign closely resembling this is abundantly represented in the two Linear Classes A and B.



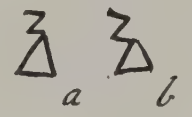
130. *a*, P. 61 c (cf. P. 80 a); *b*, P. 114 d (cf. P. 90); *c*, P. 114 c (cf. P. 104 c); *d*, P. 90 b.

[1] Ramsay and Hogarth, *Prehellenic Monuments of Cappadocia*, Pl. III.

The delta sign is well represented on the graffito documents. In four cases (P. 90 b, 104 c, 114 c, 114 d) it is found associated with the 'arrow' and numbers. On P. 80 it is placed beside the fence (No. 46).

This sign occurs among the series of marks of extremely alphabetic aspect seen on certain bone inlays found in the Palace of Knossos.[1] It appears as an adjunct to another sign of the Linear Class B, and is also seen on the Orchomenos Vase.[2] The Phaestos Disk presents a variety of this sign showing dots within.

A triangle of more acute form is an Egyptian determinative of 'land'.



131. *a*, P. 112 c; *b*, P. 111 b.

This character consists of a combination of a **Z** with the preceding delta sign, and is therefore of a compound nature.

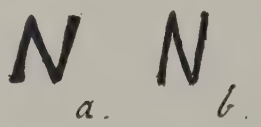
It occurs in kindred formulas on P. 111 and 112, in connexion with the 'fig-branch' sign (No. 103) and variations of the 'crook' sign (Nos. 32–35).

132. The **E**-like sign is seen on the early prism-seal P. 8 b. The incision was badly executed and the probable intention of the engraver was to produce a sign still more closely resembling an **E**.

It is grouped with **E** (No. 44 *h*) and **C**.

133. This sign occurs with an unit on the tablet P. 120, where it is followed by the threefold repetition of the crook (No. 31 *k*). **H** on P. 100 b may possibly be a variant of this.

The sign is common to both linear classes.



134. *a*, Phaestos whorl; *b*, P. 53 c.

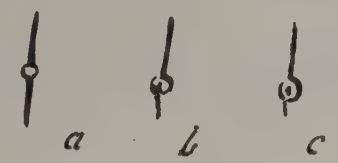
The **N** sign is found, both on the Phaestos whorl and the sealing P. 53 b, associated

[1] See 'Knossos', *Report*, 1901, pp. 118, 119.

[1] See above, p. 57, Figs. 31, 32.

with a simple vertical stroke which in the former case appears to be a sign rather than a number.

A variant of this sign appears in the Linear Class A.



135. The meaning of this sign is uncertain. It may be thought to resemble a pin with an eye in the middle like the early forms of bronze pin found in Cyprus, Egypt, Italy, and elsewhere—the prototype of a Northern class of fibulae. It occurs on P. 100 c, 103 a, c, and 105 a, in the latter case coupled with 𐄁.

It is possible that a glyptic form of this character may be detected in a sign—preceding the common 'template', 𐄀 and leg formula—on a small prism-seal in the Candia Museum recently published by Dr. Xanthudides.[1]

Decorative Elements on the Signets.

A few uncertain or incomplete figures have not been included in the above list, such as the second sign on the left of P. 113 b. Two partially obliterated figures occurring before the numbers on the upper line of the tablet P. 120, one of them of apparently a vegetable nature, have been also omitted.

It must further be remarked that, in addition to the above list of signs, other devices are found on the signets, which it seems safe to regard as 'fill-up' ornaments due to the *horror vacui* of engravers rather than as having a true ideographic value.

In some cases, as on P. 23 b, c, we find elaborate decorative designs clearly demarcated from the hieroglyphic groups, or, as on P. 3 c, 7 b, 17 c, occupying a separate side of the seal. These designs, as has been already pointed out, are of special chronological value for the comparisons they offer with the decorative motives on pottery and other materials.

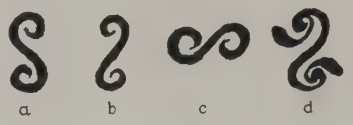
There are however certain other figures, in the form of scrolls, coils, and sprays, which are so embedded as it were in the hieroglyphic groups that it is difficult, apart from their decorative character, to separate them from the actual signs. In my original list of the conventionalized pictographs I had, under express reserve it is true, inserted several of these devices.

But the new material supplied by the graffito inscriptions on the clay documents has provided a useful criterion for determining the true character of these figures. From their non-appearance in association with the linearized inscriptions that appear on

[1] Προϊστορικαὶ σφραγίδες τοῦ Μουσείου Ἡρακλείου (Ἐφ. Ἀρχ. 1907, Pl. VI, 38 γ and p. 153). This bead-seal is of yellow cornelian from Mallia. It shows on face *a* two acrobats, perhaps connected, as Dr. Xanthudides suggests, with the *Taurokathapsia*, and on face *b* a bull.

the clay bars, labels, and sealings we may justly infer that in the case of the seals they are merely in the nature of superfluous flourishes.

The following are some of the most typical examples of these decorative figures : —



136*. *a*, P. 5 c, 24 b ; *b*, P. 5 c, 24 b ; *c*, P. 29 c ; *d*, P. 22 c, and cf. P. 3 c.

The **S** sign should perhaps be simply regarded as a decorative flourish. In P. 22 c and 3 c indeed we see it in a mere ornamental stage with lateral off-shoots. It must nevertheless be observed that in the linear scripts the **2**, and occasionally **S**, appears as a regular character, apparently with a fixed phonetic value. It is possible, therefore, that in the conventionalized pictographic series, also, it may sometimes have had a special signification.

On P. 5 c it is seen on either side of the bucranium (No. 38). On P. 24 b it appears before and after the 'trowel' and 'adze' formula, while *c* is placed horizontally above the 'mountains' sign on P. 29 c.

137*. *a*, P. 3 b (cf. P. 7 a) ; *b*, P. 38 ; *c*, P. 69 a.

The 'trumpet' or coil is in much the same case as the **S** sign. It is also seen under a mere ornamental aspect, as on the seal-impression P. 69 a, where a triple shoot is added. The early type *a* is grouped with the 'eye' and 'trowel' on P. 7 a, and on P. 3 b is repeated on each side of the trowel. Type *b*, as seen on P. 38, is placed with the goat's head, 'mallet', and 'sepia' as if forming an integral part of the sign group.

This does not appear as a character in either of the later linear classes.

138*. This 'coil' supplements the arrow and trowel on P. 17. Like the preceding it does not appear among the graffito inscriptions, and is probably only a decorative fill-up. A more angular sign, however, which has some analogy with it, is found in the Linear Class A.

The figure itself recalls the Egyptian 𓍿 = 'skein of thread', the determinative for 'linen', 'binding', &c. Compare too the twisted cord 𓋴 *sen* = 'to turn back', and

δ *kes*, the tied-up bundle = 'to bury'. On the Hittite silver seal procured at Bor, near Tyana,[1] occurs the sign identical with the Cretan.

139*. This bifoliate figure only occurs on P. 47 b accompanied by the 'sepia' and double axe. This also should probably be regarded simply as a decorative 'fill-up' like the scrolls referred to above.

[1] Ramsay and Hogarth, *Prehellenic Monuments of Cappadocia*, p. 17, Fig. 2.

Nº I. CRETAN HIEROGLYPHS OR CONVENTIONALIZED PICTOGRAPHS.

A. ENGRAVED ON SIGNETS. **B.** INSCRIBED ON CLAY TABLETS & SEALINGS. **X.** WANTING IN ONE OR THE OTHER CLASS.

Nº II. CRETAN HIEROGLYPHS OR CONVENTIONALIZED PICTOGRAPHS.

A. ENGRAVED ON SIGNETS. **B.** INSCRIBED ON CLAY-TABLETS & SEALINGS. **X.** WANTING IN ONE OR THE OTHER CLASS.

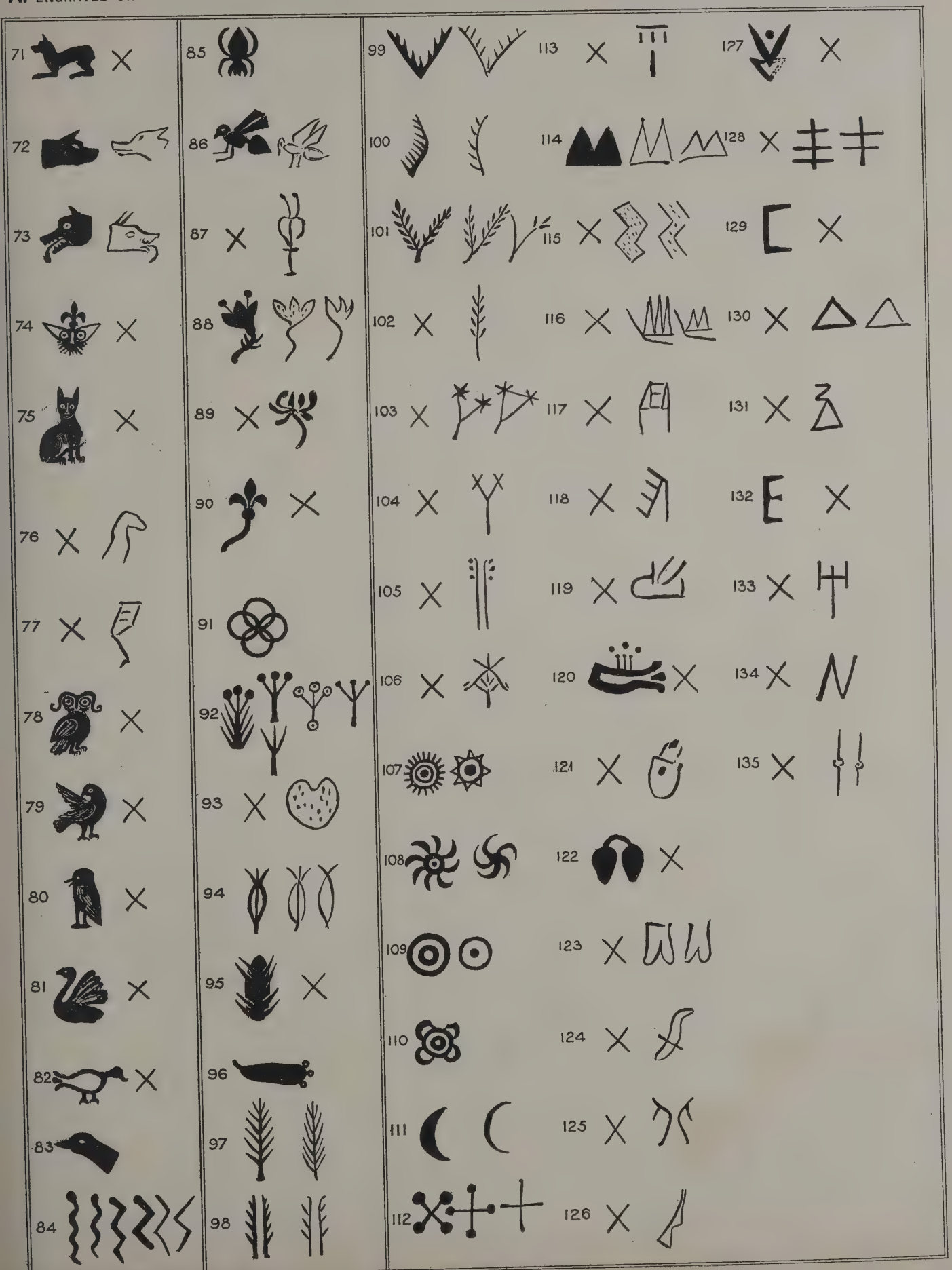


Fig. 103 (Table XIV).

II. § 10. ANALYSIS OF THE HIEROGLYPHIC OR CONVENTIONALIZED PICTOGRAPHIC SIGNARY

Synoptical Tables of glyptic and graffito types.

The Synoptical Tables XIII, XIV exhibit a typical series of the signs of the Hieroglyphic or Conventionalized Pictographic script. The signs on the right, which are as a rule of a more pictorial character, represent the glyptic forms as seen on the signets and seal-impressions. Those on the left show the graffito versions that appear on the clay documents. Where examples of one or the other category are wanting a cross (X) is inserted.[1]

Analysis of subjects.

The total number of the hieroglyphs given in the above Tables is 135, divided under the following heads :—

1–11.	The human body and its parts	11
12–35.	Arms, implements, and instruments	24
36–40.	Cult objects and symbols	5
41–46.	Houses and enclosures	6
47–56.	Utensils, stores, and treasure	10
57–60.	Ships and marine objects	4
61–84.	Animals and their parts	24
85, 86.	Insects	2
87–106.	Plants and trees	20
107–114.	Sky and Earth	8
115–135.	Uncertain objects and simple geometrical signs	21
	Total	135

To these may be added at least four other hieroglyphs, three on P. 120 and the first sign on P. 113 *b*, of which the delineations are imperfect.

The new materials.

My first list of the Conventionalized Pictographs of Crete drawn up in 1895,[1] founded solely on the evidence of seal-stones, included 82 numbers. From this total, however, 7 must probably be deducted as coming under the head of scrolls or 'fill-up' ornaments,[2] and 8 on other accounts,[3] while 14 should really be regarded as variants of others in the list.[4] This reduces the total number to 53.

Subsequent researches from the same glyptic sources[5] enabled me to add 12 additional signs in 1898.[6] The total number of hieroglyphs known previous to the discoveries of 1900 and the ensuing years was therefore 65.

It will thus be seen that the total number of signs now ascertained to exist is over double that formerly recorded. At the same time, of the 65 old signs, of

[1] Since these Tables were drawn up a glyptic form of No. 116 has come to light (see P. 49* *c*, above).

[2] Nos. 20, 49, 69, 70, 78, 80, 82.

[3] Nos. 42 (uncertain), 46 (uncertain, perhaps variant of 47), 51 (on steatite reliefs of doubtful attribution), 64 (variant of initial X), 67 (initial X), 72 (not necessarily a hieroglyph), 74 (imperfect, probably the 'sieve' sign), 76 (cf. 51).

[4] 6 (a variant of the 'mountains' sign, No. 66), 13, 73 (to be grouped with 12), 15 (fuller form of 14), 18 (variant of 17), 25, 26 (variants of 24), 30 (cf. 29), 61 (cf. 34), 53, 54 (cf. 52), 55 (ornate type of 71), 62 (variant of 60), 81 (cf. 65).

[5] See *Further Discoveries*, &c., 1898.

[6] From the list of 11 given, *F. D.* pp. 339, 340, No. 92 (variant of 'sepia') must be deducted, but, on the other hand, the 'lion's mask' and the 'cat' (Nos. 74 and 75) must be added, making 12 in all.

which only the glyptic types were at first known, no less than 33 can now be recognized in a graffito or linearized form upon the clay documents.

Respective numbers of glyptic and graffito forms.

A comparative study of existing material shows that, out of the total number of 135 signs, 45 are only seen in a glyptic form, 43 are confined to the graffito class, while 45 occur both under their glyptic aspect as seen on seal-stones, and in their graffito or linearized shape on the clay documents.

To this latter class it is perhaps legitimate to add 6 other signs, namely Nos. 1, 2, 9, 23, 70 and 129, the linearized equivalents of which are found in the documents of the later script, Classes A and B, and which should ultimately be found on the clay documents exhibiting the graffito forms of the hieroglyphic class. This would raise the total number of the signs appearing under both aspects to 51, to which must be added the glyptic form No. 132, which is itself of the linear class, making 52 in all.

More than this, out of the 45 signs that have hitherto only been found in a glyptic form, 30 at least occur on the seals in groups with other signs of which graffito or linearized examples are known to exist. It is legitimate to infer that were the documentary evidence fuller, graffito forms would also be found to exist of these 30 signs. By a similar argument we may also conclude that the majority of the signs at present only known in their graffito form have corresponding glyptic types.

It is possible that a small minority in either class may be confined to the seals or to the clay documents respectively, but the hieroglyphic system itself must be recognized as forming a consistent whole. The discovery of the clay archives with inscriptions of this class sets at rest for ever the suggestion that the signs upon the seal-stones should merely be regarded as having a symbolic or talismanic value.[1] We have now the irrefragable proof that they formed an integral part of a system of script, which on the seals may have served for official titles and religious formulas, but on the clay tablets was largely made use of for business purposes.

Signs true hieroglyphs, not merely talismans or symbols. Their application for business purposes.

The more cursive and linearized type of the signs seen in the graffito inscriptions must not, however, be allowed to obscure the fact that the main characteristics of the script with which we are dealing are essentially of glyptic origin. The earliest evidence of this form of script is found on the seals: it is on these that we see the once purely pictorial types transformed into the more conventional and abbreviated forms that answer to the 'hieroglyphic' stage.

Minoan hieroglyphic script largely derived from seals.

It is this general dependence on sphragistic usage that helps to explain the somewhat extraordinary phenomenon that meets us in the existence of this form of Minoan script.

Contrast with early linear pictographs.

It has been shown above that in Crete and other parts of the Aegean area, as in Thrace and the Troad and in Egypt itself, a numerous family of linear 'pictographs' and signs existed at a very early period. The later linear scripts of Crete largely revert to these primitive types, and the cursive graffito form of writing as seen on the clay documents of the hieroglyphic class constantly illustrates the same tendency.

[1] See above, p. 21, note 1.

The conditions unfavourable for application of early linear figures to purposes of advanced script.

Why then, it may be asked, should a more pictorial form of writing thus interpose itself between the earlier and the later class?

The question has already been to a great extent answered in Section 1 of this Part. The old linear signs were too vague or too variant in their significance for the purposes of script. The alphabetic forms were in many cases already there, but the art of writing had not yet attained to that stage of development in which the full value of these simple linear elements could be appreciated. Graphic expression had constant need to draw on the living source of picture-writing. It was only painfully and gradually, by means of a conventionalized pictography and an elaborate hieroglyphic system, and in turn through the subsequent simplification of this as seen in its graffito rendering, that linear signs began to assert their true significance. This was but the repetition of a process which had been constantly at work from the earliest days of picture-writing, as we know from the linear signs of the Reindeer Period. But the starting-point in this case was not from these simple images, but from the already highly advanced hieroglyphic signs. When, as in Table X (p. 114), we see a series of First Dynasty hieroglyphs giving birth to purely alphabetic forms by a mere process of hasty writing we recognize the real process that gave birth to the advanced forms of linear script.

Pictorial transformation of the old linear pictographs of Crete in the Middle Minoan Age. Due to Egyptian example.

The conventionalized pictography of Crete in its earlier stage, as illustrated by the ruder class of seals and pendants shown in Section 1, was itself largely of that kind described above as the 'slate pencil' style. Its readiness to take simple linear forms of a remarkably alphabetic character is shown by several of these examples. It is natural to suppose that certain elements in the advanced linear script of Crete, as we know them in the Late Minoan Age, go back to these conventionalized line drawings. But the interesting phenomenon with which we are confronted is that, as a matter of fact, during the intervening period, or, roughly speaking, the Middle Minoan Age, these simple figures underwent a pictorial transformation.

It can hardly be doubted that this pictorial and decorative revulsion which produced the hieroglyphic script of Crete was largely due to Egyptian example.

Extent of Egyptian influence on Minoan Crete from the early dynasties onwards.

Apart from the possible Libyan connexion suggested by some of the Early Cretan remains of the 'Ossuary Period', there is abundant evidence of the direct indebtedness of the Minoan civilization to that of Egypt, going back to the first dynasties. Not only is a whole family of Cretan vases in various materials of Early Egyptian derivation, but the prototypes themselves, in the shape of proto-dynastic stone bowls of syenite and diorite, have come to light on the Palace site of Knossos. On the native steatite cup from Hagia Triada showing a harvest dance, the time is set by an Egyptian *sistrum* of the simple form in use in the early dynasties. The Knossian faience ware and inlays, which can be traced back to the beginning of the Middle Minoan Age, are themselves derived from Sixth Dynasty Egyptian models and present, as will be pointed out below,[1] makers' marks curiously parallel with the Egyptian.

On the other hand, as has been shown above,[2] the brilliant polychrome ware

[1] See Vol. II.

[2] See p. 19.

of Crete was already by the days of Sesostris a valued article of import in the land of the Pharaohs, and at Abydos the general furniture of a rich Egyptian includes an elegant Minoan vase.

It cannot then surprise us that, as shown above, certain Cretan types of signet, such as the half-cylinders, the 'button'-seals, and with them the three- and four-sided bead-seals, the earliest vehicles of the Conventionalized Pictographic script, should correspond with types existing in the Nile Valley, nor that in certain cases there should be an undoubted interrelation in the figures or patterns that these seals present. More than one Egyptian scarab of Twelfth Dynasty date has been found in Crete, and at any rate from the Thirteenth Dynasty onwards, as we know from the discovery of the diorite figure of Wazd User and the lid of Khyan, Egyptian hieroglyphic inscriptions must have been familiar to the denizens of the Cretan palaces.

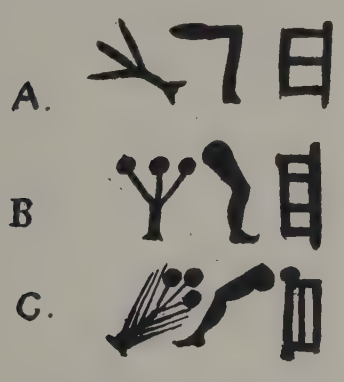


TABLE XV. Fig. 104.
Comparative Groups of ᛉ, Leg, and Gate.

Imitation of Egyptian hieroglyphic style by Minoan dynasts.

In Crete, with the establishment of what seems to have been a highly organized dynastic government under the Minoan priest-kings, it is natural to suppose that the same striving after stately monumental expression may have produced a similar result in the use of a glyptic official script. Moreover, when the very early evidences of relations between Crete and the Nile Valley are fully realized, it cannot be thought surprising that Egyptian models should in this, as in so many other respects, have been exercising a formative influence.

Transformation of earlier linear characters under glyptic influences.

To a certain extent it is possible to watch the actual transformation of the earlier linear class of signs in Crete under the influence of the decorative glyptic style. It is, moreover, specially interesting to observe that on some of the earlier three-sided seals of the same elongated class as that with which the Conventionalized Pictographic signs are chiefly associated, whole groups of characters appear under the older linear guise. Good examples of this are afforded by the grey steatite seal-stone from Knossos (P. 8), another of the same soft material from the province of Siteia (P. 7), and P. 11 from an uncertain Cretan site.

The sign-group on P. 11 is composed of three linear characters, the significance of which might not be so clear if a comparative study did not bring out the fact that the same group is of repeated occurrence in a more pictographic shape which brings out the true origin of the signs.

The comparative groups given in Table XV (Fig. 104) sufficiently show that the first sign, which resembles a ᛉ, is in its origin a vegetable sign. No. 2, a rude gamma, turns out to be a human leg, and No. 3 a door or gate.[1] It must be remembered that, of these examples, the linear group (A) occurs on a steatite seal-stone of distinctly earlier fabric (Class A of the present series). The other more pictorial groups (B and C) are taken

[1] The leg and gate signs by themselves are also frequently coupled on the pictographic seals.

from seals of much more advanced technique, executed on harder materials. Here, then, we have the older, hardly recognizable linear signs, reverting to naturalistic forms under the influence of a more artistic taste as directed by greater technical skill.

This process reactionary from alphabetic point of view.

On the primitive stones such as the whorl from the Hagios Onuphrios deposit (Fig. 52) and the pendant from Arvi (Fig. 49) the rude outline sketch of a horned head makes its appearance, little nearer nature than the Phoenician *alef*. On the pictographic seals this or similar heads take more realistic shapes, and enable us to recognize, as the case may be, an ox or goat. The mere angular crook or Γ of Table XV (Fig. 104, A. 1) clothes itself, as it were, with flesh and blood and becomes a human leg. A mere circle completes itself as a human eye. The upright with cross lines that seems to have stood for a tree takes a more arboreal outline. In this way the more pictorial stage of this sign-writing at times supplies a welcome retrospective key to the traditional meaning of the primitive linear characters.

At the same time, as in the case of the Egyptian hieroglyphs,[1] this calligraphic process, in which we see the reflection of their influence, must from the alphabetic point of view be regarded as in the main reactionary so far as form is concerned. However imperfectly applied as yet to the purposes of a formal script, the old linear forms, such as we see them both in the primitive Cretan and Aegean strata and in prehistoric Egypt, were those that ultimately triumphed alike in the Late Minoan script of Crete and in the Phoenician alphabet. 'The primitive engraver who made an ox's head with an angle and cross strokes, a human leg as a mere bent line, or a tree with an upright and three horizontal lines was nearer the beginnings of alphabetic writing than the artistically trained Egyptian (or his Cretan imitator) whose picture sign informs us of the genus or even the species.'[2]

Such phenomena as the survival of some of the primitive linear types and their partial reversion to more naturalistic forms, in conformity with the new artistic style, are themselves useful evidences that the Conventionalized Pictographic script was essentially of indigenous development.

Character of Egyptian influence on Minoan hieroglyphs. No servile imitation, as Phoenician.

At the same time this is by no means to deny that this Cretan hieroglyphic form of writing received many suggestions from the Egyptian side. It must be borne in mind, moreover, in this connexion that the Minoan rulers had abundant opportunities for a direct acquaintance with the Egyptian hieroglyphic writing, specimens of which, as already noted, were actually found in the Palace of Knossos.[3] Yet it is abundantly clear that we have not here to do, as in the case of certain Phoenician handiwork, with mere blundered copies of Egyptian cartouches or inscriptions.

A formative influence may well be admitted, but in this as in other directions Minoan culture was able, while largely profiting by Egyptian models, to assimilate them in its own fashion. The insular position of Crete was, in fact, of great value in securing the independence of the native arts and industries. It was open to the suggestion, but not to the domination, of foreign example, and the servile copying of

[1] *Further Discoveries*, &c. (*J. H. S.*), p. 395. [2] Ib.
[3] See above, p. 237.

Egyptian forms, to be found in the neighbouring Palestinian regions which Pharaoh's hosts could overrun dryshod, is never traceable in the early Cretan handiwork.

Common element in all hieroglyphic systems.

It is evident that a good deal of the parallelism that exists between the Cretan and the Egyptian hieroglyphs is of a quite general nature and such as is to a large extent shared by all systems of conventionalized pictography. Thus it will be found that the different heads under which the Cretan hieroglyphs are here classified are almost equally applicable, not only to the Egyptian system but to such widely separated groups as the original picture signs of Babylonia,[1] the primitive 'keys' of the Chinese writing,[2] and the Maya pictographs of Central America.[3] Such categories as the 'human body and its parts', 'arms and implements', 'cult objects and symbols', 'houses' and 'domestic utensils', 'plants and animals', the earth and sky', form parts of a purely natural classification which might be adopted in any part of the globe. It is only when we come to details that the distinctions of locality leave their mark, and the prominence given to the lotus and papyrus in the Nile Valley may be transferred in Crete to the saffron or the olive, while the Chinaman perchance chooses a bamboo, and the man of Yucatan a mimosa.

Several of the signs belonging to the above categories, such as the sun, moon, and stars, the eye, hand, or other parts of the human body, and certain simple implements and weapons, may be considered to be common to all systems. The parallel appearance of such in Crete and Egypt is not therefore a proof of indebtedness on either side.

Egyptian signs borrowed in exceptional cases.

In some cases, however, the coincidence goes beyond this, and we see among the Minoan hieroglyphs certain religious symbols, objects of cult, attributes of royalty, forms of instruments and other objects which present a specifically Egyptian aspect.

A select series of comparisons between Cretan hieroglyphic and Egyptian forms will be seen in Table XVI (Fig. 105). One or two parallels that can hardly be accidental are best explained by religious influences. Among these are the *ankh* or life sign *a*, in its origin a girdle-knot, and the 'libation vase' *b*, to which a handle has been added. The *ankh* recurs among the linear signs of both classes, and in Late Minoan art is found outlined with the sacred double-axe symbol with an obviously religious intention.[4] It is also seen in the hands of beast-headed demons of Nilotic origin on a shell relief from the Palace of Phaestos.[5]

The *ankh*.

Egyptian 'Palace' sign.

Perhaps the clearest parallel of all is supplied by *c*, the prototype of which must undoubtedly be sought in the Egyptian 'Palace' sign. As pointed out above,[6] the diagonal line which appears in both is probably a simplified linearization of the staircase leading to the upper story in the original tower. The bee, *d*, was also in Egypt a symbol of royalty, and it is certainly a suggestive fact that on the seal-impression P. 75 *a* it is associated with the Minoan version of the 'Palace' sign.

Other suggestive coincidences.

[1] Cf. Delitsch, *Entstehung des ältesten Schriftsystems*, § 28. Überblick über die ursprünglichsten babylonischen Schriftzeichen.

[2] Rémusat, *Éléments de la grammaire chinoise*; P. Berger, *Histoire de l'Écriture dans l'Antiquité*, p. 49.

[3] Daniel G. Brinton, *Primer of Maya Hieroglyphics*, pp. 82 seqq.

[4] *Myc. Tree and Pillar Cult*, p. 80.

[5] L. Pernier, 'Scavi a Phaestos, 1900–1901' (*Mon. Ant.* XII, Tav. VIII); D. G. Hogarth, 'Zakro Sealings' (*J. H. S.*, 1902, pp. 91, 92, and Fig. 33).

[6] p. 198.

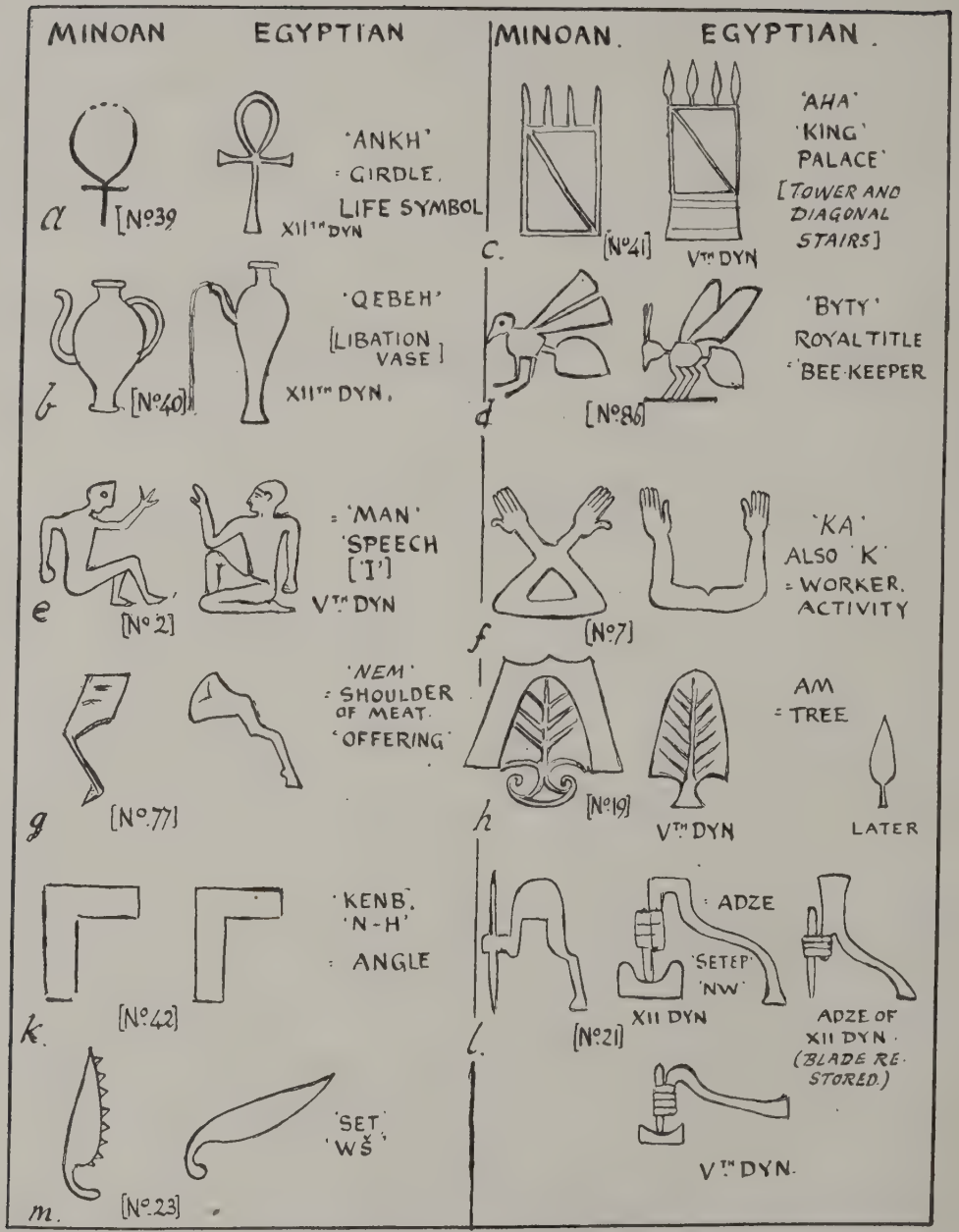


TABLE XVI. Fig. 105. EGYPTIAN COMPARISONS WITH MINOAN HIEROGLYPHS.

The squatting figure *e*, though it does not exactly reproduce the characteristically Egyptian manner of sitting on one heel, yet conveys a general suggestion of the influence of a common Egyptian sign for 'man'.[1] The crossed arms, *f*, show a close affinity with the well-known *ka* sign. The figure shown in *g*, if rightly interpreted as the foreleg of an animal, finds a close analogy in the Egyptian 'haunch'. The palmette, *h*, contained in the template sign (No. 19 above), is simply a conventionalized version of an early form of the Egyptian tree sign as seen, for instance, on the Fifth Dynasty Mastaba of Ptahhetep. In Egypt itself this early tree figure survived, as in Crete, in a decorative connexion, and, combined with the spiral, appears as a motive of a Twelfth Dynasty ceiling pattern.

Palmette tree sign.

The typical form of the handle in the adze sign, *l*, links it with a group of Egyptian tools, the wooden handles of which were fashioned somewhat in the form of animals' legs. The carpenter's angle, *k*, and the saw, *m*, point to the same Nilotic source. The 'trowel' (No. 18) also finds close Egyptian parallels.

Tools and vessels.

It is true that some of these tool-signs, though they certainly imply the indebtedness of prehistoric Crete to Egyptian civilization, might not by themselves supply sufficient proof that the Minoan scribes had set themselves to imitate the hieroglyphic forms of these objects. Some of them appear in a modified form, the Minoan equivalent of the Egyptian libation vase (*kabh*), for instance, being provided, as we have seen, with a handle in accordance with a usual Cretan practice when adapting Egyptian forms of vessels.[2]

In the case of several of these tool-signs, however, over and above their general resemblance to Egyptian prototypes, a certain parallelism with Pharaonic usage is observable in their method of application. Special attention will be called below[3] to the constant collocation of the 'adze' and 'trowel' signs on the Cretan signets, and the comparison suggested by the similar grouping of the 'adze' and 'saw' hieroglyphs on Egyptian monuments,[4] where they are used to convey the title of a royal builder. Another architectural sign, the 'template', the Egyptian connexions of which are brought out by the palmette[5] contained in it on P. 24 *a*, is in the same way coupled with the 'trowel' in official formulas on seals, and also seems to enter into the title of a royal Minoan builder.

Parallel usage of 'adze' and 'trowel' and 'adze' and 'saw' in Crete and Egypt.

In view of these comparisons, it seems legitimate to infer that, over and above the general formative influence which the Egyptian hieroglyphic system may have exercised on the Cretan, some traces exist of a more direct indebtedness. This, as we have seen, seems to be specially observable in the case of certain signs connected with religious ritual and symbolism, with the badges and titles of royalty, and the implements of the mason's craft and of architectural decoration. Several other suggestive comparisons have been also noted in the observations appended to the catalogue of

Special class of Cretan signs derived from Egypt.

[1] See above, pp. 181, 182.

[2] See A. J. E., *The Prehistoric Tombs of Knossos* (London, Quaritch, 1906), p. 149.

[3] See p. 267.

[4] On the Mastaba of Ptahhetep (F. Ll. Griffith, *Ptahhetep*, Pl. XXXV. 6) this collocation is followed by ▭ = block of stone and signifies 'mason'. (See *op. cit.*, Pt. I, p. 30 (No. 273).)

[5] See above, pp. 187, 188.

signs given above. Such, for instance, are the hand holding a curved instrument (No. 16), the 'crook' (No. 32), the circle containing dots (No. 52), recalling the Egyptian granary sign, and No. 122 suggesting the ideograph for 'kidneys'.

Were the Minoan and Hittite hieroglyphs directly related?

The deep, underlying community that unquestionably existed between a very early stratum of the Cretan population and that of Southern Anatolia would naturally lead us to look on that side for the closest comparisons with Minoan hieroglyphs.

In the catalogue of the Cretan signs given above certain comparisons have been made with Hittite forms. Many resemblances are of a general kind, and the mere recurrence of such signs as a human hand, a goat's or ox's or ass's head, the 'mountains' sign, an arrow or a conventional flower, need have nothing more than a general anthropological significance.

Minoan hieroglyphic records anterior to Hittite.

It must also be borne in mind that the chronological discrepancy seems to be considerable. The Hittite inscriptions, so far as they are known, belong to a distinctly later date than the Cretan hieroglyphic system. The full development of the latter took place during the Twelfth and Thirteenth Egyptian Dynasties, and the usage of this quasi-pictorial form of script in Crete seems hardly to have survived the Middle Empire. We have seen that in the stratum which at Knossos marks the catastrophe of the Middle Minoan Palace, and which has been roughly dated, above, about 1600 B.C.,[1] the hieroglyphic script had already been succeeded by the advanced linear of Class A. But the first manifestations of the Hittite power on the Syrian borders, in the reign of Thothmes III, lie well within the limits of the New Empire in Egypt and of the Late Minoan Period in Crete, where by that time the linear script of Class B was already well established. The Egyptian records tend to show that the high tide of the Hittite dominion belongs rather to the Nineteenth Dynasty and to the age of Rameses II (*c.* 1300 B.C.), when Qadesh on the Orontes had become one of their principal strongholds. It is unquestionable, moreover, that many of the Hittite inscriptions come down to a considerably later date than this.

Difference in general arrangement and forms of Hittite characters.

Regarded as a whole the Hittite characters are of more complicated form than the Minoan hieroglyphs, and their arrangement is less simple. It is also to be observed that the later and more linearized class, such as is illustrated, for example, by the seals from Kuyunjik[2] or the stone bowl from Babylon,[3] present very few obvious resemblances to the linearized types of the Cretan hieroglyphic script.

Parallels observable.

Among the more striking parallels that have been noted above between the Cretan and Hittite series are the wolf's head with protruding tongue (No. 73), the ass's head (No. 68), the 'fleur-de-lis' (No. 90), the plant sign in the form of a ☤, and the possibly floral sign, No. 127.

Metal seals.

A certain parallelism is also to be noted between some of the metal seals of the Hittite class and the Cretan seals of the 'signet' class. It is true that the distinctive Hittite form, like that from Bor,[4] has the lower plate or matrix of the seal attached

[1] See p. 31.
[2] Wright, *Empire of the Hittites*, Pl. XVIII. 1–8.
[3] *Op. cit.*, Pl. XXV (*Proc. Soc. Bibl. Arch.*, May, 1885).
[4] L. Messerschmidt, *Corpus Inscriptionum Hettiticarum*, Pl. XLII. 6.

to the loop by three lion's legs. The Cretan signets hitherto known, moreover, are cut out of stone, though, as pointed out above, the character of some of the clay impressions, notably P. 64 *a*, tends to show that Minoan metal types also existed. This latter example, with the characters in the central field surrounded by a decorative ring, curiously recalls some of the Hittite seals. Considering the dominating position at one time filled by Minoan culture in the East Mediterranean lands, the possibility must not be excluded that certain elements in the early Anatolian culture were influenced from the Cretan side. That, in any case, the Hittite seals in question are of distinctly later date than the Minoan 'signets' is beyond all possibility of doubt.

Absence of most characteristic Hittite signs from Minoan series.

In comparing the two hieroglyphic groups it must be further observed that several of the most characteristic of the Hittite signs are conspicuous by their absence in the Cretan series. Among these may be mentioned the boot with upturned end, the peaked cap, the tongs or pincers, the knife with curving point, the hare and seated eagle, together with other frequently recurring figures of uncertain interpretation. On the other hand, it is extremely remarkable that the double axe, which is prominent among the Minoan hieroglyphs and represents a cult object shared by the old Carian population of Asia Minor, should be absent among the Hittite signs.

Inherent probability of remote connexion between primitive pictography of Crete and Anatolia.

It is well to remember, however, that, though from one cause or another the Conventionalized Pictographic script of Crete and that of the extensive Syro-Anatolian region affected by the Hittite civilization took very different complexions in their developed forms, a high probability nevertheless remains that they have some deep-rooted elements in common. It has already been pointed out[1] that the geographical position of Crete, as before all things an extreme insular outpost of Western Asia, brings with it the almost necessary consequence that the most primitive stratum of its culture, together with the earliest element in its indigenous stock, finds its true continuity on the Anatolian mainland. The geological causes which had inserted an inlet of sea between Crete and the mainland of Greece at a time when a land passage was still open to the East really imposed this condition, and for the same reason the fauna and flora of the island find their nearest affinities in the neighbouring tract of Asia Minor. When it is realized to what a remote stage of human history picture-language goes back, and that even in the 'Reindeer Period' of the West certain signs seem to have become fixed, it can hardly be doubted that the most primitive elements in the Cretan signary fit on to an Anatolian parent stem. The Nilotic or European ingredients must be later arrivals.

It is possible, however, to hold these theoretic reserves as to its ultimate origin and yet to admit that the general character of the conventionalized pictography of Crete is extremely independent. The number of comparisons other than those of a quite general nature that it is possible to institute either with the Hittite or the Egyptian series is extremely limited. The formative influence of Egypt and some small borrowings from that side must be admitted, but on the whole the Minoan hieroglyphic system is essentially of home growth. It forms indeed an epitome of the

Minoan hieroglyphic system

[1] See p. 102.

essentially of home growth.

early civilization of the island as it existed about the end of the third millennium before our era.

A record of Minoan arts, industries, and commerce.

A certain number of signs (Nos. 2, 3, 7, 8, 10) give us hints of gesture language; arms and implements are passed in review, and we see the tools, some of them obviously of Egyptian origin, used by the masons, carpenters, and decorators of the great Cretan Palaces. The 'lyre' of eight strings (No. 29) shows that this musical instrument had already reached the same stage of development as that of the Classical Age of Greece, over a thousand years before the days of Terpander.

We have before us the indications of a mercantile and industrial as well as of a pastoral and agricultural community. The recurrence of the ship sign is specially suggestive, and if Nos. 92 and 93 may be interpreted to stand for the plant and heart-like fruit of the *silphium* we have already proofs of maritime and commercial intercourse with Cyrene. The ingot (No. 56) illustrates the medium of currency otherwise recorded by the clay tablets of the linear class and by the actual deposit of bronze ingots in the Palace of Hagia Triada. The varieties of vases and other domestic utensils are numerous. The spinning and bee-keeping industries seem to be represented by the spider (No. 85) and the bee (No. 86).

Among domesticated animals we see more than one kind of ox and may watch the supersession of the Cretan short-horn, the *Bos Creticus* of Boyd Dawkins, by the long-horned *Urus* breed of cattle prevalent throughout the later Minoan Age. The frequency of the goat sign makes it probable that we have not always to do with the wild goat, but also with a domesticated variety. Swine and horned sheep are also found, and the head of a dog, perhaps of the big Molossian type, otherwise represented on the gems. Species of wild animals are illustrated by the lion's mask and wolf's head, and in No. 75 we see the cat already acclimatized in the European area. The goats may in many cases at all events be intended for the *Agrimi* or Cretan wild goat, and the horned sheep (No. 67) recalls the fact that the hunting of the moufflon is certainly depicted on the later Minoan gems.

Agriculture is well to the fore. The plough (No. 27) is of constant recurrence, and there were evidently a great number of plants and trees under cultivation. No. 94 shows the grain of a cereal in flower, No. 95 is probably an ear of barley, No. 96 apparently a gourd, and the olive branch (No. 101) and the fig (No. 103) contribute to the list of signs. An important branch of cultivation seems to have been that of the saffron crocus (cf. No. 88), which supplied the brilliant dyes for the Minoan ladies' robes, and many later tablets of the two linear classes refer to the same plant.

The hieratic element is not by any means so prominent as in the Egyptian hieroglyphic series, and in two cases where it is traceable, the appearance namely of the *ankh* and the libation vase, we have already noted the probable influence of Egyptian religious usage. In addition to these, however, the double axe and the altar horns (No. 37), as well as the bucranium (No. 38), have an obvious reference to the cult of the great Minoan divinities.

II. § 11. CHARACTERISTICS OF THE HIEROGLYPHIC SCRIPT

How far was the phonographic stage attained?

The most important question regarding the Conventionalized Pictographic signs is how far we have to do with simple ideograms or 'word-signs', and how far the system had reached the phonographic stage in which the signs have the value of syllables or even of single letters.

In the tablets illustrating the later systems of the Cretan script, the linear characters are generally clearly distinguished from the more pictorial and purely ideographic figures that follow them, and to which they refer, such as chariots and their parts, ingots of metal or vessels of special forms, fruit trees and cereals.

A few signs may be solely pictorial ideograms, but the bulk also phonograms.

A certain number of the signs that appear on the clay documents of the hieroglyphic class may in the same way be represented for the purposes of a special inventory and not have had a general currency. Some vegetable forms, for instance, like Nos. 87 and 89, of which only isolated specimens occur, or vases with special contents may be placed in this category. At most, however, it seems that a very small proportion of the signs can be referred to this exceptional class. From the repetition of so many of these hieroglyphs in various groups, and the large proportion of them that are found on the seals as well as on the clay documents, we may infer that they were of general use as integral parts of the script.

Combination of ideographic and phonetic functions.

On the other hand, it seems probable that a large number, if not all, of the characters could be used by themselves ideographically as 'word-signs'. This, indeed, is to a great extent also true of the linear scripts.

Isolated word-signs.

In many cases we find signs in isolated positions, which otherwise occur in groups. Sometimes, especially in the earlier class, a single sign—often thrice repeated so as to indicate the plural—occupies the face of a seal-stone. At other times we see a character marked off from others of a group by an X or cross, the conventional mark indicative of a new sign-group or word-sign. Occasionally there is a dividing stroke.

Characters found in such isolated positions may be taken to indicate separate words or ideas, though the same signs when found in groups may have had a purely phonetic or syllabic value. It is however possible, as already observed, that some characters were never used except as ideograms.

Ideographic signs preceding phonographic in official titles.

The mark of separation is sometimes omitted. This omission, for instance, is not unfrequently observable in the case of the ideographic usage of two signs, the 'gate' or 'door' and the 'human eye' which specially characterize what may be taken to be official titles on some of the signets.

With or without dividing line.

Of these, the 'gate' or 'door' when used as an ideogram may naturally be taken to imply the title of 'Keeper' or 'Guardian'. It is found continually at the beginning of a recurring formula, the two succeeding signs of which are the 'bent human leg' and Y sign, but never between them. Sometimes it is separated from these by the usual dividing X, as on P. 20 *a* and 27 *b*. In other cases, however, as on P. 23 *a* and 30 *a*,

there is no mark of division between the 'gate' and the succeeding signs. The 'gate' is also coupled with the 'bent leg', either with or without the ✕ (cf. P. 18 *a*, 17 *a*).

The 'human eye' is an appropriate ideogram for the functions of an 'Overseer'. It is also of frequent recurrence on the signets, where it is found in connexion with a title relating to building, in which the 'trowel', by itself or in company with the 'arrow-head' sign, figures. On P. 27 *d* we see the 'eye' divided off from the 'trowel' by a double line, on P. 33 by an ✕; elsewhere, on the other hand, it forms one group with it (cf. P. 7 *b*, 19 *c*, 25 *d*, 54 *b*, &c.).

Cumulative ideographic groups.

In addition to the isolated disposition of word-signs we occasionally encounter what may be called cumulative ideographic groups. In this case two or more signs with a closely allied signification are placed together so as to cover a more extended expression. This usage was well known to the Egyptian scribes. Thus, on the clay label P. 85 *a*, a human fore-arm, leg, and crossed arms are placed together—perhaps conveying the meaning of 'labour' in various forms. They are succeeded by a 'saffron' flower. So, too, on the clay sealing P. 15, we see the axe, lance, and arrow-head combined as if to give a comprehensive idea of weapons. The repeated coupling of the 'adze' and 'trowel' supplies a similar example of the same cumulative method. The collocation, again, of the sacred double axe and the 'Palace' sign on P. 64 *c* seems to represent the 'House of Minos' in its double aspect of Sanctuary and Palace. It would thus be equivalent to what seems to have been the original sense of the word Λαβύρινθος.

Expression of composite ideas by ideographic conjunctions.

The collocation of the 'gate' and 'human eye' on the Phaestos tablet before a series of vegetable figures and signs of quantity seems to mark an official who combined the functions of 'guardian' and 'overseer'. Allied to this cumulative usage is the expression of certain compound ideas by the union of more than one sign. The 'mountains' or territorial sign on P. 29 *c* is connected with a plough, and on P. 26 *b* it twice occurs between pairs of ploughs. In these cases we seem to have the compound signification 'plough-land' = cultivated plains. In the same way the heart-shaped object enclosing grains—compared above with the *silphium* fruit—placed after the two store jars on P. 87 *b* may be reasonably supposed to supply an indication of their contents. Or, again, the inclusion of grains in the jar itself gives the compound idea of 'grain jar'.

From what has been said above it will be seen that there were both simple and compound forms of ideographic expression. We find:—

1. Isolated word-signs, sometimes repeated, as in the case of Egyptian hieroglyphs, to indicate the plural.

2. Word-signs of kindred meaning grouped together for the more comprehensive expression of composite idea.

3. Word-signs of different meaning grouped together so as to express a compound idea.

It would further appear that certain word-signs or ideograms were attached

to what may have been phonetic groups without any mark of separation. In this case they would have performed a function akin to that of the Egyptian determinatives. Determinatives at end of groups.

These seem to be often placed at the end of groups. Thus the seated human figure after the sign-group on P. 29*a* may indicate that the signs preceding it form a personal name. The human bust after other groups on P. 101*a*, 102*a*, and 104*a* may have a similar significance. In the same way in the tablets of the Linear Class B whole rows of sign-groups are sometimes seen, followed in each case by a human figure either male or female, and probably representing lists of personal names.

A variety of considerations lead to the conclusion that, apart from the ideographic usage—shared perhaps by all the characters and to which indeed some of them were probably confined—the phonographic element was also well represented by the Cretan hieroglyphs. Evidences of the phonographic element.

In a purely pictographic system the number of signs is necessarily very large. Every fresh object, whether made use of directly or indirectly as a means for expressing an idea, requires in fact a separate picture. It is true that in conventionalized systems of pictography such as that of the Mayas or of early China we find the number of root-signs reduced to a few hundreds. But in such systems they were greatly multiplied by the creation of compound forms. In the present case this composite element is practically non-existent, while at the same time the number of figures is comparatively limited. Limited number of signs.

The total number of Cretan 'hieroglyphs' that can be ascertained from the existing material is, as we have seen, only 135, and from this we may legitimately deduct a certain number of quasi-pictorial signs of special application and not forming part of the general currency.

The natural inference from this limitation of number is that a large proportion of the signs were capable of a phonetic value. When it is remembered, indeed, that the Egyptian hieroglyphic system, in which the phonetic as well as the ideographic element was well represented, included over 400 signs, it becomes probable that the use of phonograms was proportionally even more rife in the Minoan signary.

It is a natural law in the evolution of advanced forms of writing that in proportion as a system ceases to be ideographic, and becomes purely phonetic, the number of signs decreases. In the advanced linear script of Crete (Class B), which has great claims to be considered mainly phonetic, the number of signs is about 100. In the Cypriote syllabary there are some 54 characters. Finally, in the Semitic alphabet there are 22 letters. Law of diminution in numbers of signary as phonetic element increases.

That there was a marked ideographic element in the Minoan hieroglyphic system has been already sufficiently shown. Besides isolated ideograms we have at times to do with groups of kindred objects, such as tools, weapons, human arms and legs, which evidently have a cumulative value.

But when we come to analyse in detail the sign-groups on the seals and tablets it becomes evident that the conjunction of many of the figures in these groups cannot be explained by any association of ideas, such as the objects themselves would naturally suggest. From the point of view of ideography such groups are disparate. Disparate character of many sign-groups incompatible with

ideographic usage.

No perceptible connexion in ideas seems to be evoked, for instance, by such collocations as the following :—

A fish, the 'human eye', and the 'trowel'.
The 'double axe', a store vessel, and a snake.
The 'double axe', 'sepia', and bifoliate figure.
The 'mountains' sign, the 'arrow', the 'mallet' and 'libation vase'.
The 'sieve' and 'bee'.
The mallet, 'Y-plant', and 'lyre'.
The 'saw', 'sepia', and 'snake'.

Numbers of signs in groups compared with Egyptian.

It may, therefore, be assumed as a working hypothesis that a phonetic as well as an ideographic element entered into the Minoan hieroglyphic system. The phonograms probably consisted, as in Egyptian, of single syllables, open and closed, and double syllables. As a matter of fact an analysis of the average number of signs in the respective groups does not work out very differently from the Egyptian when deductions are made in the latter case for the frequent repetitions of equivalent phonetic signs with which the hieroglyphic writing was encumbered.

The following tables give the rough percentage of the number of characters in the Minoan groups and of their use in a separate position as single signs :—

On Seals.

Numbers in groups.	No. of examples.
1	16[1]
2	28
3	47
4	8
5	1
	100

Graffiti.

Numbers in groups.	No. of examples.
1	12
2	40
3	38
4	8
5	2
	100

Total percentage on Seals and Graffiti.

Numbers in groups.	No. of examples.
1	14
2	34
3	42
4	8
5	2
	100

Taking now for comparison the first 200 groups of hieroglyphs in Erman's Egyptian Glossary and deducting the determinatives and, as far as possible, the phonetic repetitions, we arrive at the following rough percentage :—

Number of signs in a group.	
1	6
2	28
3	48
4	16
5	2
	100

Composite figures.

Figures that may be properly called composite are, as already remarked, rare. In Nos. 47–50, however, we see the vase sign differentiated by a separate indication of the contents. On No. 31 we see a tablet linked to a curved support. The lion's mask with the fleur-de-lis rising from it (No. 74) may certainly be described as a compound sign, and the orb or sun disk placed before the ship in No. 57 *a* and the two crescent moons attached to the rigging of No. 57 *b* may also be cited as instances of a similar

[1] Omitting some special signs of a pictorial character.

phenomena. The palmette placed within a kind of framework (No. 106) has also a composite appearance. These examples, however, are quite exceptional, and as a rule the figures are simple and self-contained.

Artificial modification of certain signs.

On the other hand, there is evidence of an artificial modification or variation of certain signs which, more than any other feature, points to the systematic ordering of the Minoan hieroglyphic script.

This is exemplified by two of the alphabetiform characters, Δ and ʃ or ſ. Thus the simple form of Δ seen under No. 130 has a small Z attached to its vertex in No. 131. This might, however, be called a compound geometrical sign.

Variations of 'crook' sign.

The artificial character of the variation is more clearly perceptible in the case of the 'crook' sign, No. 32, and the variants given under Nos. 33, 34, and 35.

This sign is linked in a special way, as is seen in the Phaestos Tablet, with some quasi-pictorial vegetable figures, such as the saffron and flowering ear of corn, the palm branch, and the fig branch, followed by numbers. It is suggested above that the crook, as an implement connected with the ingathering of fruit, may have become the symbol of a certain fixed measure. The differentiated signs which are connected with it in the same groups would thus represent variant quantities.

The variations of this sign are produced in the most artificial way by means of cross-bars or spurs, as will be seen from the annexed Table XVII (Fig. 106).

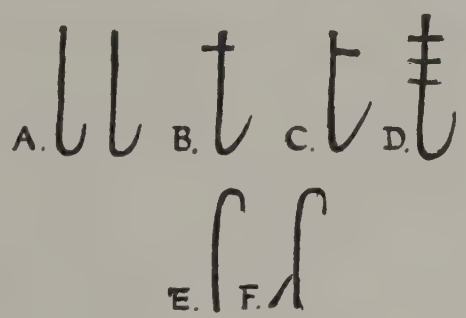


TABLE XVII. Fig. 106.

Differentiations of Crook Sign.

It is interesting to observe that the same system of differentiation by the addition of cross-bars recurs in the case of certain signs belonging to the Linear Class B, specially connected with numbers and referring to domestic animals. The latter of these seems to originate in the shepherd's crook.

Alphabetic forms in hieroglyphic signary.

The alphabetiform elements among the Minoan hieroglyphs in many cases represent, as already pointed out, a very primitive tradition. These simple figures may at times be regarded as heirlooms of remote antiquity. That they originally depicted objects in a rude infantile style of art—compared above to the child's 'slate-pencil' drawings—must be inferred by all analogy, and as word-signs they doubtless retained a record of their origin. In some cases, as has been shown above, they came, as it were, to new life under the influence of the Egyptianizing and artistic glyptic style, so that the simple linear form is actually the older so far as the seals are concerned. In other cases we see purely pictographic figures of later convention gradually linearized by the Minoan scribes.

A fair proportion of the signs belonging to the Minoan hieroglyphic series assume simple geometric aspects. Sometimes, indeed, as in the case of the linearized versions of the human eye (No. 5), of the crossed arms (No. 7), the serpent (No. 84), the figures

are modified almost beyond recognition. In these cases a series of examples illustrates the transition from the pictorial to the linear figure. In many other instances, however, we find simple forms of which the origins are obscure.

Some seventeen of the linear forms represented bear close resemblances with later alphabetic forms.[1] The relation in which the Minoan hieroglyphic system stood to the later linear classes of the Cretan script will however be illustrated in the succeeding volume of this work.

II. § 12. ARRANGEMENT OF THE HIEROGLYPHIC INSCRIPTIONS

Complicated appearance of hieroglyphic inscriptions.

Compared with the later linear script, which regularly runs from left to right, the order of the signs and groups of the Conventionalized Pictographic series is a much less simple matter. A casual inspection of some of the seals and tablets—on P. 24 *c*, for example, or P. 101 *a*—seems to reveal a confused medley of signs, the order of which, without further knowledge of their values, it would be hard to extricate.

Clues to arrangement.

A more detailed study of the material, however, enables us to discern that already at this period the Minoan scribes followed definite rules, and that the inscriptions themselves present certain marks which afford a guide to the beginnings and ends of groups.

Evidence from clay bars.

The clearest available evidence for establishing the order of hieroglyphic inscriptions is supplied by the clay bars. It will be seen that on these it was the practice to begin the inscription near the perforated end. The other end of the bar may be left blank, but the part near and up to the perforated extremity is inscribed. It cannot be imagined that a starting-point was made away from this end of the bar after such a nice calculation of the space required that the inscription exactly filled the interval. We must therefore suppose that the scribes used the perforated end for their approximate starting-point. In the case of a long inscription it could run continuously over the flat lower end of the bar, as is seen in P. 116 *d*, *e*.

The fact that in the clay bars the inscriptions start from the perforated end has this necessary corollary. In cases where there is only a single line of inscription the numbers —which, as will be seen, succeed and never precede their connected sign-groups—are found away from that extremity of the bar. Simple examples of this are seen on P. 109 *a*, *b*, *c*, *d*.

Various directions of the inscriptions.

The inscriptions on the clay bars run indifferently from left to right and from right to left, and, where there is more than one line, are continued in a curved or *boustrophedon* fashion. The perforated end was laid on the left side when the scribe wished to write from left to right and vice versa.

On some bars all the groups start in the same direction. Thus on P. 116 they run entirely from left to right. On other bars the direction of the inscription varies. Thus on P. 107 we see a regular alternation—on faces *a* and *c* the lines running from left to right,

[1] Nos. 5, 13, 32–34, 44, 45, 84, 92, 109, 111, 112, 128, 129, 130, 132, 134.

on *b* and *d* from right to left, as if the object had been to write the whole inscription *boustrophedon*.

On P. 100 the inscription runs from right to left on faces *a*, *c*, and *d*, while on *b* it takes the other direction. On P. 103, again, lines *a*, *b*, and *c* run from right to left and *d* from left to right. The three- and four-sided bead-seals afford evidence of the same kind of variation, though it is not always so patent as that supplied by the clay bars.

Inscriptions on clay labels.

The inscriptions on the clay labels, like those on the bars, begin close to the perforation. They generally start on its left side and run round from left to right. In some cases, however, as on P. 92 *a*, they run from right to left. The *graffiti* on the clay sealings also run either way.

On the clay tablet P. 120 both lines run from left to right. The Phaestos Tablet shows a more complicated arrangement, the inscription starting from left to right and terminating in a curiously sinuous manner (see below, p. 254, Fig. 111).

The initial 'X'.

The clear data, supplied especially by the clay bars and labels, bring out the value of a small recurring mark, which forms a very serviceable guide to the order of the inscriptions. This is an ✕ cross, more rarely +, methodically placed at the beginning of groups or before isolated word-signs. It is sometimes only put at the beginning of an entire line, at times of only one line on a bar, thus apparently marking the beginning of the whole inscription, as, for instance, on P. 109 *a*. In other cases the first group is without it, but it is placed before the second, as on P. 103 *b*, and, apparently, 24 *c*. It is sometimes omitted, but where it occurs it is applied with great regularity as an initial sign, and thus has a special value in determining the order of many of the groups, notably on the seal-stones, where the evidence is otherwise not so clear.

The initial ✕ mark is sometimes boldly incised and of the same dimensions as the other characters—an instance of this being supplied by that to the left of P. 26 *a*—but as a rule it is distinctly smaller. At times it is quite minute, occasionally almost microscopic, as that which marks the beginning of the group on the signet P. 39. The fact that a somewhat parallel *graffito* group (P. 105 *a*) showed an initial sign in an analogous position induced me to look for it on the signet with the aid of a lens, and by this means the small cross became clearly perceptible. With the same assistance a minute ✕ is discernible before the double-axe sign on the edge at the end of face *c* of the three-sided bead-seal P. 44,[1] where the stone is somewhat worn.

A diagrammatic sketch[2] of the arrangement of the signs on the three faces (*a*, *b*, *c*) of this seal is given in Fig. 107, the arrows indicating the direction of the lines. It will be seen from this that the whole may be read as a continuous inscription, with lines running in alternate directions, so that if they had been in a single field the arrangement would have been *boustrophedon*. This arrangement is indeed shown, from the evidence supplied by the initial ✕ marks, to have been adopted on face *c*.

Evidence of a *boustrophedon* arrangement.

Examples of the same inscription recurring in different documents, and in each case provided with the initial mark, supply some useful illustrations of the methods

[1] This had not been perceived by the artist who drew the enlarged figure of this seal-stone given in *Pictographs, &c.*, p. 22, Fig. 23, *b*, and reproduced below under P. 24 *c*.

[2] The S-shaped scrolls at the two ends of *b* are omitted as being probably decorative adjuncts.

of arrangement. These comparisons show that though the direction in which the lines run may be either from right to left or left to right, horizontal, undulatory or *boustrophedon*, there was really a fixed method underlying this order.

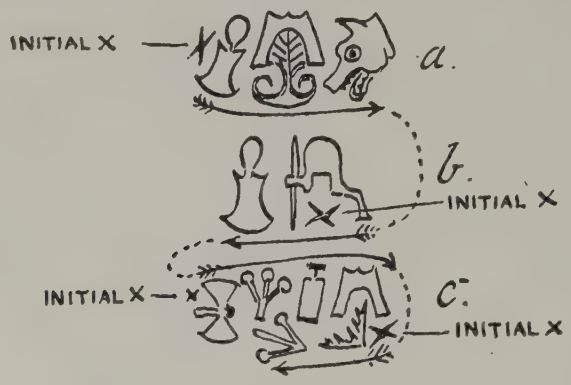


FIG. 107.

Example of *Boustrophedon* Order on Prism-seal.

COMPARATIVE EXAMPLES SHOWING ORDER OF GRAFFITO INSCRIPTIONS (DIAGRAMMATICALLY DRAWN).

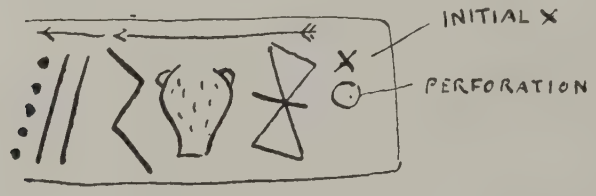


FIG. 108. *a*.

Fig. 108 *a* (from P. 109 *a*). Shows sign-group followed by numbers (= 250) starting from the initial X-mark at the perforated end of the clay bar and running horizontally from right to left.

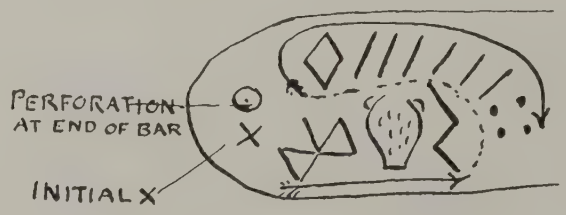


FIG. 108. *b*.

Fig. 108 *b* (from P. 103 *d*). Shows the same sign-group starting in the same way as *a* from the perforated end of a clay bar, but from left to right and with the numbers (= 1640) written above in the same direction and curving downwards.

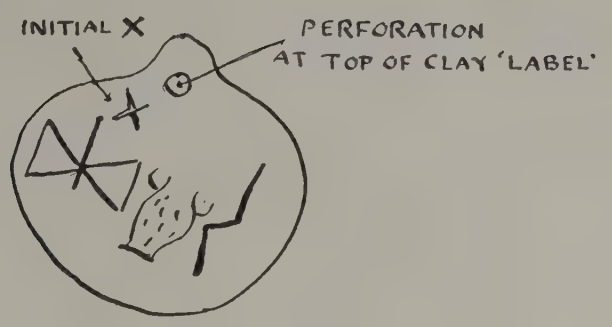


FIG. 108 *c*

Fig. 108 *c* (from P. 89 *b*). The same group starting from the X-mark on a clay label, left of the perforation.

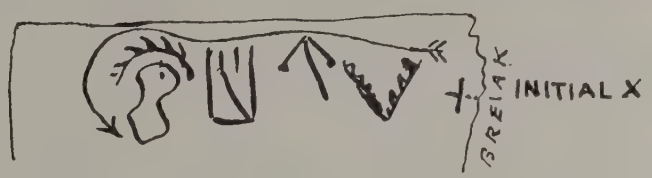


FIG. 109. *a*.

Fig. 109 *a* (from the clay bar P. 101 *a*). The sign-group runs from the initial X-mark horizontally from right to left, curving down at the last sign (the 'bust').

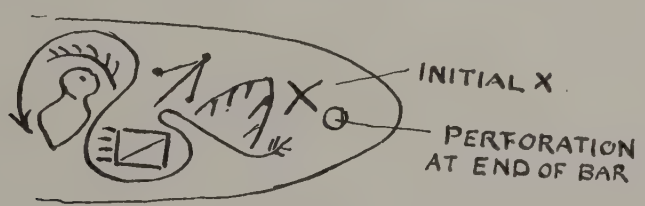


FIG. 109. *b*.

Fig. 109 *b* (from P. 102 *a*). The same sign-group is seen, starting from the X-mark, here at the perforated end of the bar, and running from right to left in a very undulatory course—for the greater economy of the available space.

Lines of division.

In addition to the initial mark we often find lines of division, vertical or slightly sloping, as on the clay sealing P. 63 *b*. This is specially useful in separating *boustrophedon* groups, such as those on P. 100, or the clay labels P. 80 *b* and 83 *b*. On P. 100 the initial X is superposed on these uprights at the points where the new groups begin. At times these lines are simply terminal, giving a finish to the inscription as on P. 107 *b*, *c*, *d*.

On both sides of the label P. 85, the field is divided into two compartments by a horizontal line, the lower compartment of *a* being again divided by a vertical line. So too on the Phaestos Tablet, P. 121, we see the field divided into two compartments by a horizontal and descending line.

Horizontal lines.

Sign-group occasionally carried on into succeeding line.

On the clay documents of the Linear Class B the field is regularly divided by horizontal lines, which seem to have served the same purpose as those of modern ruled paper. Each line generally contains a separate entry, but one with another the successive lines form an integral part of the inscription as a whole, and at times part of what is apparently the same sentence is carried on into the succeeding line. An interesting instance of what seems to be the same practice is found on the bead-seal P. 41 *b* (Fig. 110). Here the field is divided into two by a horizontal line. The initial cross (here +) shows that the inscription begins with the 'libation vase', while the double axe in the lower line is marked off as a separate word-sign by a pair of crosses (see Fig. 110, *a*). As there is no intermediate initial sign it looks as if the group on line 1 ran over into line 2, and ended therefore in two 'sepia' signs (see Fig. 110, *b*). In

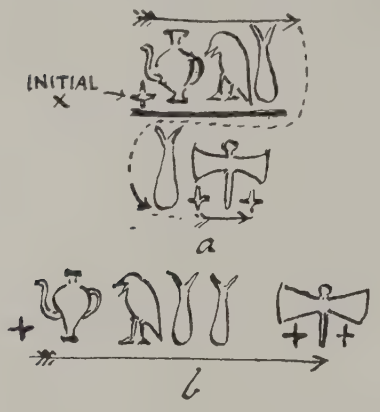


FIG. 110.

Order of Inscription on Bead-seal.

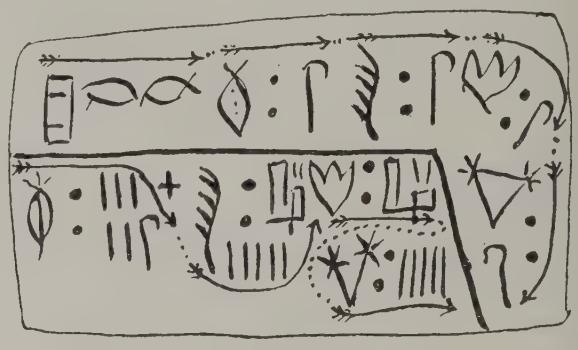


FIG. 111.

The Phaestos Tablet, showing the order of the inscription.

support of this view may be cited the fact that on the Dictaean Libation Table the same 'sepia' sign is duplicated at the end of a group.

The Phaestos Tablet.

On both sides of the 'label' P. 85, the field is divided into two compartments by a horizontal line, the lower compartment of *a* being again bisected by a vertical line. So too on the Phaestos Tablet, P. 121, we see the field divided into two compartments by a horizontal and descending line.

Investigation of its arrangement.

The lower part of the Phaestos Tablet is of somewhat complicated arrangement, but the order of the signs becomes simpler when we recognize certain guiding principles. After the first two signs, the gate and human eyes which, as shown above, enter largely into official titles and convey the natural sense of guardianship and oversight, there follows a succession of four triple groups. These consist first of a vegetable sign, the 'flowering corn grain', 'palm branch', 'saffron flower', and 'fig branch' respectively; secondly, of numbers; and thirdly, of the crook sign, ʃ (probably, as noted above, a symbol of quantity), or in its place, in two groups of the lower compartment, another somewhat maeander-like sign.

The order thus arrived at is indicated in the above plan (Fig. 111), each of the

arrows that show the direction of the inscription also corresponding with a separate sign-group. The inscription in the first compartment runs from left to right and curves downwards. That in the lower division of the tablet also runs from left to right; the latter part of it, however, takes a very undulatory course. Here the beginning of the second group is indicated by the initial mark, the 'maeander' signs, as already noted, following the numbers after the palm branch and saffron just as the ʃ in the upper compartment. The last group, beginning with the fig-branch (No. 103), forms a kind of tail to the inscription, and (perhaps for want of room) the supplementary sign is here omitted after the numbers.

Signs variously oriented.

The orientation of individual signs, notably on the signets, greatly depends on the convenience or even the caprice of the engraver. Thus a glance at the seals on Plate II shows the arrow-head in every position, pointing up or down, sideways or slanting. The 'trowel' (No. 18) is sometimes seen with its handle uppermost, sometimes it is placed on its side. The 'mallet' (No. 24) appears with its handle above or below, or it is laid horizontally, and the same variation is observable in the position of the 'template' (No. 19).

The quasi-decorative arrangement of the signs on the seals was partly responsible for this variation, as well as the need for packing the groups of characters into a narrow field with the greatest possible economy of room. But the same laxness of usage is also perceptible on the clay documents, where the practical reasons for it were less cogent.

It must at the same time be observed that certain types, such as the ship, the human figure, legs and arms, animals or their heads, and many vegetable forms, the pictorial character of which is clearly pronounced, could hardly be placed in a wholly inverted position. Such designs therefore often supply a trustworthy clue as to the way up that a line of characters is supposed to be set.

Relation of objects to direction of inscription.

By itself, however, this evidence is not sufficient to show in what relation such figures stand to the direction of the inscription itself. In the Egyptian hieroglyphic writing the characters face towards the beginning of the line. Thus a ship is steered to the left and animals face in the same direction. On the other hand, it will be shown below that in the case of the linear script of Crete this rule is reversed, the direction of such signs as the flying bird, the human figure, animals and their parts, or other moving or movable objects, such as the prows of vessels, being turned to the right in conformity with the direction of the lines of the inscriptions.

Which then was the practice followed by this earlier hieroglyphic script of Crete?

Animate, &c., forms generally face hieroglyphic groups, as in Egypt.

For deciding this question we have to rely on the more certain evidence supplied by the initial X-mark referred to above. Here the most conclusive examples certainly tend to show that as a rule the Minoan hieroglyphic usage conformed to that of Egypt.

On the label P. 92 *a* the seated human figure faces the sign-group, with numbers immediately succeeding it. On P. 24 *a* the wolf's head faces two signs, the direction of which, as in the former case, is indicated by the initial mark. The same is true of

the dogs' heads on P. 86 *a* and 89 *a*, of the goats' heads on P. 101 *b*, 104 *a*, 107 *d*, 108 *a*, of the cat on P. 36, of the bird on P. 41, of the bird's head on P. 21 *a*. This is perhaps sufficient to prove the general rule, though an exception occurs on P. 26 *d*, where the ass's head faces in the same direction as the inscription.

II. § 13. THE HIEROGLYPHIC NUMERATION

Difficulties attending hieroglyphic numeration.

The establishment of the system of numeration on the clay documents of the hieroglyphic class is by no means so simple as on those presenting the two linear forms of script. The materials for comparison are not so numerous. They are naturally limited to the clay documents and are often imperfect. At the same time the general arrangement of the inscriptions is more complicated.

Less assistance than might have been expected is here obtained from the numeral characters of the Linear Classes A and B. With regard to the higher figures—the hundreds, namely, and thousands—there is in these a complete change. The later form

Units.

of the unit, however, consisting of a small upright or slightly slanting stroke, is already found in the hieroglyphic class, though the more usual figure is a curved line like a reversed C.[1]

Sign for 'ten'.

In the later Class (B) of linear inscriptions the 10 is invariably represented by a horizontal line. In the Linear Class A, especially on the earlier tablets of that series, we encounter, however, an alternative usage, a pellet or dot being substituted for the horizontal line. This fact has a valuable bearing on the numeration of the hieroglyphic inscriptions, since in these, too, pellets are often repeated in the penultimate position, and must evidently be also interpreted as tens.

That in the hieroglyphic as in the linear system the decimal system was in vogue is shown by the fact that in no case does the repetition of a single figure exceed nine.[2] The round sums into which many of the totals add up according to the method of interpretation here adopted give a retrospective confirmation to this conclusion.

Signs for 'hundred'

In the linear systems the hundreds and thousands are indicated respectively by simple circles and by circles with spokes, a horizontal line within the latter (= 10) raising the amount to 10,000. In the present case we see the pellets or dots representing tens immediately preceded—as, for instance, on P. 105 *b*, 109 *b*, 116 *b*—by long slanting or upright lines which must be interpreted as 'hundreds'[3] (Fig. 112).

and 'thousand'.

Before these, again, as on P. 116 *b*, 100 *a*, 103 *d*, &c., one or more lozenges appear to which the signification of 'thousands' may be safely attached (Fig. 113). There is no higher sign.

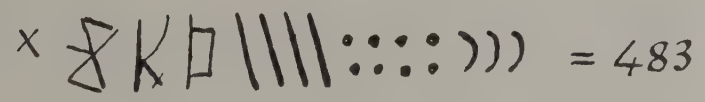
[1] Two C's superposed sometimes are made a continuous figure of two curves, as on P. 104 *b*. These composite figures must each = 2; so that the numerical group in question would read 206.

[2] The 1000 sign is repeated up to six, the 100 up to eight, the 10 up to nine, the unit to eight.

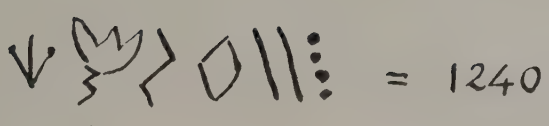
[3] On the hieroglyphic inscription P. 211 appear three small annulets which are possibly an anticipation of the O = 100 seen on tablets of the two linear classes.

As in the later linear systems, fractions are sometimes observable. On the Linear Class A a simple angle ∠, sometimes in pairs one over the other in reversed positions, not infrequently appears as a fractional sign. It is apparently the same fraction that meets us in the form of V thrice repeated after a 10 and an unit on P. 104 *c* (Fig. 114). Fractions.

In this case the V probably represents a quarter, so that the amount indicated on



(FROM P. 116 *b*)
FIG. 112.



(FROM P. 109 *b*.)
FIG. 113.

(FROM P. 104 *c*.)
FIG. 114.

Specimens of Hieroglyphic Inscriptions followed by Numbers.

the tablet would be $11\frac{3}{4}$. An angular sign possibly representing the same figure appears by itself on the archaic clay bar P. 122 *b*.

The plan on p. 258 (Table XVIII, Fig. 115), drawn up in accordance with these results, gives a general conspectus of the system of numeration found on the hieroglyphic tablets.

The largest separate amounts mentioned in the hieroglyphic documents, and the only amounts in which the 'thousand' sign is found, are 6400 and 1400 (P. 100 *a*), 2550 (P. 100 *d*), 1640 (P. 103 *d*), and 1240 (P. 109 *b*). Generally we see a succession of numerical groups on different sides of a clay bar. The amounts represented, for instance, by the numerical groups on different faces of P. 116, all of which are complete, read as follows :— Separate amounts mentioned.

a. 800, 540, 44, 86 = 1470
b. 483, 46 = 529
d. 800
e. 83.

These various amounts, which give a total of 2882, stand in no obvious relation to one another, though there are two sums of 800.

P. 103, which is also completely preserved, supplies the following sums :—

a. 80, 42 = 122
b. 60, 20 = 80
c. 80, 50 = 130
d. 1640.

The total is here 1972, and in this case again the successive amounts do not show any definite relation to one another.

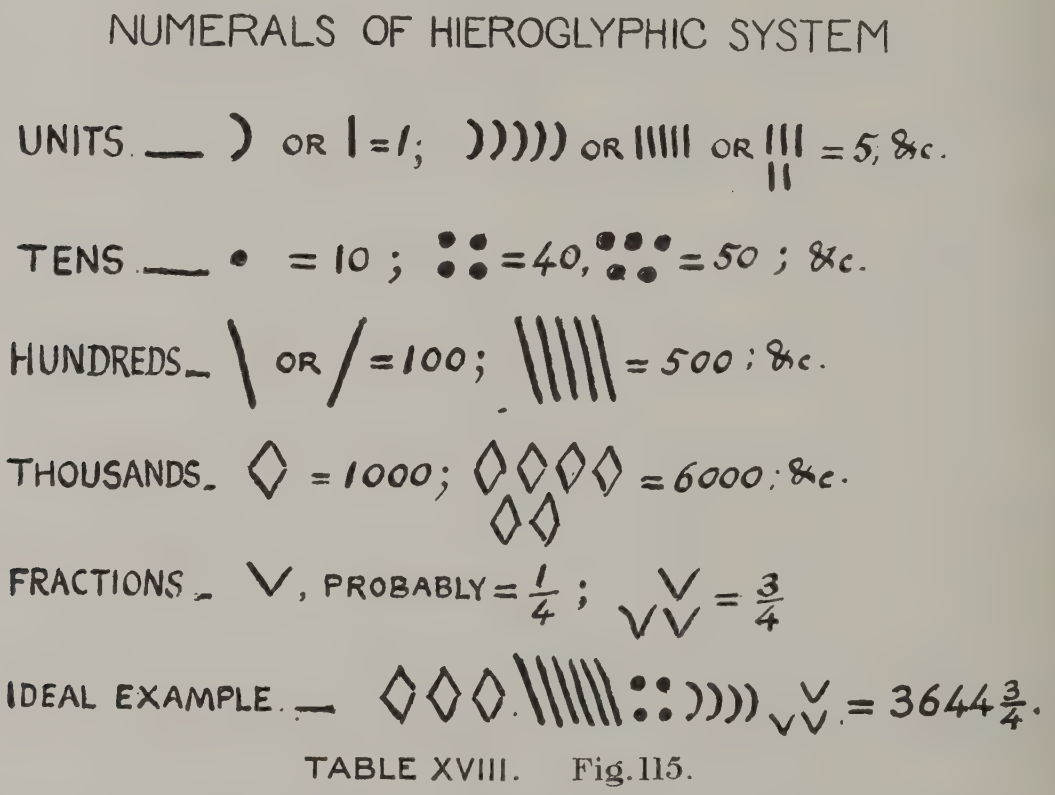

NUMERALS OF HIEROGLYPHIC SYSTEM
UNITS. —) OR | = 1;))))) OR ||||| OR ||| / || = 5, &c.
TENS. — • = 10; = 40, = 50; &c.
HUNDREDS. \ OR / = 100; = 500; &c.
THOUSANDS. = 1000; = 6000; &c.
FRACTIONS. V, PROBABLY = 1/4; V / VV = 3/4
IDEAL EXAMPLE. — = 3644 3/4.

TABLE XVIII. Fig. 115.

Sums of 100 and round numbers.

On P. 107, where the inscription is again perfect, we reach a more definite result :—

a. 10
b. 50
c. 20
d. 20.

The total amount is therefore here 100, a result which corresponds with a repeated phenomenon observable on what has been called below the 'percentage tablets' of the Linear Class B.

In the same way the first three sides of P. 105, where the numbers attached in each case to sign-groups seem to be perfectly preserved, give a round sum in hundreds :—

a. 40, 60 = 100
b. 290
c. 710.

The total is thus 1100, *a* being 100, and *b* and *c* together 1000.

The remaining side, *d*, of P. 103 is of an exceptional character, showing three separate groups of pellets = tens, without any hieroglyphic signs attached. The respective groups amount to 70, 50, and 40. On P. 108 *c* we also find three isolated numerical groups (one incomplete) without any hieroglyphs.

The document preserving the largest sums is, as already noticed, the perforated clay bar P. 100. Some of the figures on the bar have suffered from superficial fractures, but sufficient traces remain in all cases to enable us to make out the amounts with reasonable certainty.

a. 6400, 1400[1] = 7800
b. 50, 300, 20 = 370
c. 40
d. 2660,[2] 130 = 2790.

The total here is 11000, or just ten times the sum (1100) arrived at from the addition of the figures following the sign-groups on P. 105. We have here a fresh and striking illustration of a tablet dealing with a total sum in round numbers.

Position of numbers on tablets.

As a rule the numbers follow after sign-groups in the same direction, which, as will be seen below, may be either from right to left, as on P. 101 *c*, 103 *a*, *c*, 105 *a*, *b*, 109 *a*, *d*, or from left to right, as on P. 104 *c*, 105 *c*, 109 *b*, *c*, 116 *b*, *d*, *e*. In some cases, however, they are placed over the connected sign-group, as on P. 83 *b*, 103 *d*, 118 *d*, or beneath it, as on P. 103 *b*. In all cases the numbers, like the signs themselves, may take a curving or *boustrophedon* course, such as is seen on P. 103 *d*, 104 *b*, 108 *b*, and notably on P. 100 *a* and *d*. It may be laid down as a general rule, which also holds in the case of the linear script, that the numbers never precede the sign-group with which they are connected.

Defect of system : possible confusion of units and hundreds.

The weakness of this system of numeration seems to lie in the possible confusion between the elongated upright or slanting strokes that stand for hundreds and the shorter strokes, at times straight like the others, indicating units. It was probably for this reason that in the later classes of script a new form of the 100 sign was adopted, consisting of a small circle.[3] The lozenge form of the 1000 sign was also discarded and a figure which stands in relation to the new 100 sign—a circle, namely, with spokes—introduced in its place.

[1] The base of a fourth upright of the hundreds is just perceptible.

[2] Traces of a sixth pellet (=10) are visible.

[3] The annulets seen on P. 111 *c* of the present series should possibly be interpreted in the same way.

II. § 14. CORRELATION OF THE GLYPTIC AND GRAFFITO INSCRIPTIONS: RECURRENT SIGN-GROUPS

Sign-groups common to seals and documents.

Although one class of hieroglyphic inscriptions appears on seals and the other on what must be regarded as business documents, many of the groups and conjunctions of signs are common to the two categories.

That certain formulas and signs should be confined respectively to the glyptic or to the graffito class is only what might be expected, though the comparatively limited field at our disposal makes it unsafe to draw too sweeping conclusions from negative phenomena. Nevertheless, it is probable that from the very nature of things certain ideographic expressions should be more in place in one class of inscriptions than in the other.

Certain signs peculiar to one or the other class.

'Canting' badges.

That certain 'canting' personal badges, to be described in the succeeding Section, should be mainly confined to the signets accords with their individual character. Among the specimens of Class II, which alone can be regarded as approximately contemporary with the clay documents, the cat, lion's mask, dove, horned owl, and fish are peculiar to the seals. But a very conspicuous example, the wolf's head with protruding tongue (No. 73), is also found on the tablets. So, too, the goat's head, which, at times at least, may also belong to the same category, occurs in both materials.

Official titles common to seals and documents.

These animal badges, as will be shown in the following Section, are associated on the signets with certain characteristic formulas, there explained as official titles. These, as it was perhaps reasonable to expect, are less frequent on the clay documents. The constantly recurring group of the human leg and gate is only found in a single place in a graffito form (P. 82 *a*, Table XIX, *a*, below). The first two signs of another formula frequent on the signets, consisting of the 'template' and a pronged instrument (*b* of Table XIX below), also only appear together once among the written documents, namely, on the imperfect clay bar P. 104 *a*. The equally common adze and 'trowel' group of the seals is not seen among the clay archives.

On the other hand, the recurring arrow and 'trowel' formula (*c* in Table XIX below) of the signets is almost equally well represented among the *graffiti* (P. 80 *a*, 83 *b*, 100 *c*, 104 *d*, 109 *e*, 116 *a*, *d*, *e*). The 'trowel' and 'eye' (B 11) appear in P. 54 *b* and 104 *b*. The sepia and ☇ sign of the glyptic series recurs on the clay sealing P. 61 *b*, on the bar P. 100 *a* associated with the ship, and with an interposed cross on the 'label' P. 80 *a*. This formula, perhaps, as suggested above, a personal name, connects itself with the lion's mask badge.

Comparison of the same sign-groups in glyptic and graffito form.

These and other instances of parallel sign-groups occurring both on the seals and on the clay documents are often of service in enabling us to recognize the identity of the same sign under its glyptic and graffito forms. A comparison of a certain number of such groups common to both categories is given in Table XIX (Fig. 116).[1]

[1] In order to simplify the comparisons the signs are represented as running in the same direction, namely, from left to right, with the exception of *a*, which should be read from right to left.

Just as some of the formulas on the signets are absent from the graffito series, so some recurrent sign-groups of the clay documents are not found on the seals. Examples of the latter, with small arrows indicating the direction in which the characters run, are given in Table XX (Fig. 117).

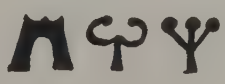
Recurring groups peculiar to graffiti.

A very notable feature both on the seals and on the clay documents is the number of recurring sign-groups in which the order of the characters is rigidly

Adherence to fixed order in sign-groups.

TABLE XIX. Fig. 116.

Glyptic and Graffito Versions of Identical Sign-groups.

maintained. It might have been supposed, for instance, that the signs of the frequently repeated formula, consisting of the gate, leg, and Y, would sometimes change their positions. But this is not the case. The evidence tends to show that the 'gate' sign is always at the beginning, the 'leg' in the middle, and the Y at the end. So, too, in the formula often associated with it,  the

pronged sign, ♆, is consistently in the middle. In the same way *b* and *f* of Table XX continually recur in the same order. All this indicates a fixed and highly conven-

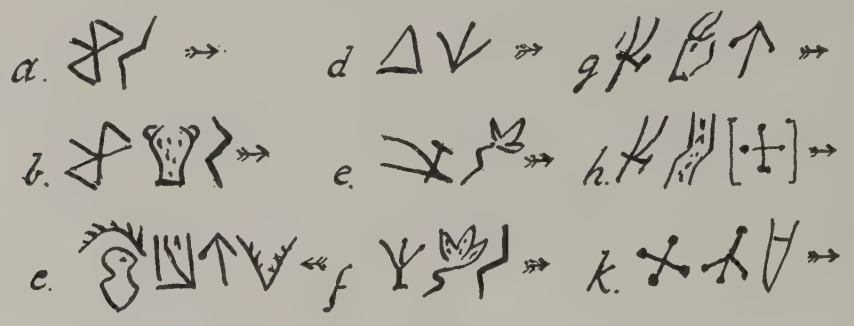


TABLE XX. Fig. 117.

Sign-groups only found in Graffito Inscriptions.

Fig. 117. *a*, P. 84 *b*, 108 *a*; *b*, P. 89 *b*, 103 *d*, 109 *a*, 118 *c*, *d*; *c*, P. 101 *a*, 102 *a*; *d*, P. 90 *b*, 104 *c*, 114 *c*, *d*; *e*, P. 81 *a*, 86 *a*, 100 *b*; *f*, P. 104 *d*, 109 *b*; *g*, P. 76 *b*, 93 *a*, 108 *d*; *h*, P. 93 *a*, 109 *d*; *k*, P. 108 *e*, 116 *a*. The arrows show the direction in which the characters run.

Of these it will be seen that *b* is repeated five times, *d* four, *e* and *g* three. For the undulatory arrangement of *c* see above, p. 253.

tionalized arrangement of the hieroglyphic script, very far removed from the more or less fluid conditions of primitive pictography.

Intercalated signs in groups.

At times, however, an extraneous sign is intercalated in a regular group, as the

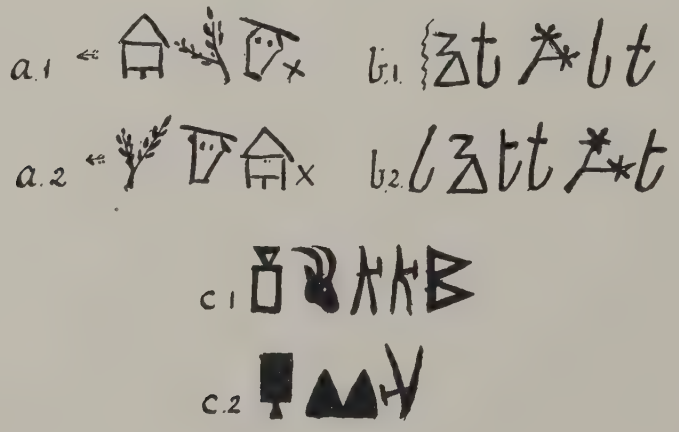


TABLE XXI. Fig. 118.

Transposition of Signs in Similar Groups.

'angle' between the double axe and arrow in Table XIX, *h*. So, too, on P. 96 *a* we see the arrow sign inserted between the 'mountains' and the 'mallet' of Table XIX, *k*.

In other examples signs forming component parts of a group are seen to shift their relative positions.

Instances of translocation of signs in groups.

In Table XXI (Fig. 118), *a* 1 and *a* 2, from P. 107 *b* and 83 *a* respectively, the ox's head is in both cases followed by the double branch, but the 'barn' or 'store-house' sign, with which they are coupled, is placed in one instance at the beginning and in the other at the end of the group.

Table XXI, *b* 1 (P. 111 *b*) and *b* 2 (P. 112 *c*), exhibits two groups, including what has been above recognized as the fig-branch sign, and composed of very similar elements, but differently arranged. A sign may be wanting from the beginning of *b* 1.

It will be seen that, apart from the conventionalized pictographic figure of the fig-branch, the signs of these two groups, resembling italic *l*'s and *t*'s, are of a class already referred to above (p. 249) as probably representing measures and quantities. They are themselves of plain geometrical form, artificially differentiated by cross-lines, spurs, and other simple modifications. The remaining sign, resembling a Δ with a Z attached to the apex, may belong to the same category. This conclusion would also account for the fact that none of the above characters, except the *b* which represents the prototype of its group, appear on the signets. So, too, as might be expected, the numerical signs are absent on the glyptic series.

Good examples of similar variations are also presented by the 'mallet', 'plough', and 'mountains' signs, as grouped together on P. 22 *b* (Table XXI, *c* 1) and P. 29 *c* (Table XXI, *a* 2).

The 'mallet' here maintains its place, but the order of the 'plough' and 'mountains' is changed. The 'plough' sign is also reduplicated in *c* 1, and the goat's head is inserted after the mallet. The collocation of the 'mallet' and 'goat's head', as will be seen on Fig. 116 *f*, recurs both on seal-stones and graffiti.

II. § 15. EVIDENCES OF OFFICIAL TITLES, PERSONAL NAMES, AND CANTING BADGES ON THE HIEROGLYPHIC SIGNETS

Egyptian influences on Minoan sphragistic usage.

It is reasonable to suppose that in a general way Egyptian sphragistic usage will be found to throw a welcome light on that of the Minoan world. The Cretan seals themselves, as a means of securing property and of authenticating documents, served the same purpose as the Egyptian scarabs and earlier cylinders.[1] There can be no doubt, moreover, that in the means adopted for these ends, as in so many other departments, Minoan civilization was directly indebted to the example of Egypt. It has been already noted that the three-sided clay sealings, for instance, specimens of which were found in the 'hieroglyphic' deposit of the Knossian Palace, resemble on a somewhat lesser scale a type in use under the early dynasties of Egypt. It seems probable that, as in the case of contemporary scarabs, the signs on the Minoan seals

[1] For the various applications of Egyptian seals and a classified series of characteristic scarab-types see especially the useful work of Mr. Percy Newberry, *Scarabs: an Introduction to the study of Egyptian Seals and Signet- ings* (Constable, 1906).

may often relate to personal names and official titles, sometimes, perhaps, of a religious character, and also including geographical definitions. It has indeed been observed, in more than one region, that the need of expressing by a kind of rebus the names of persons, divinities, or places has been one of the earliest operating causes in the development of pictographic writing.

Like the contemporary Pharaohs, the Minoan priest-kings—for such we may suppose them to have been—would naturally desire to have their names and titles, sacred or otherwise, artistically engraved upon their signets. As a matter of fact, the grouping of signs on the Cretan seals is often highly suggestive of an Egyptian cartouche, and the combination of such groups with decorative elements has much in common with the designs of a very usual class of Middle Empire scarabs.

Suggestions from royal cartouches.

This is well shown by the beautifully executed prism-seal P. 23, reproduced below in Fig. 121, the principal type of which is a seated cat.

Personal badges or *cognomina* on Cretan signets.

It is, therefore, a highly suggestive phenomenon that we find, especially on the seals, a series of figures, each representing a part, or in some cases, like the above, the whole of an animal, which have every appearance of being personal badges or actual names or *cognomina*. These occur either as the sole type, as on P. 28 *a*, 31, 36, and 40, or in connexion with other signs; but in the latter case they are nearly always distinguished from the associated characters by their much larger size; witness the cat on P. 23 *a*, the dove on P. 31 *a*, the lion's mask on P. 34, and the horned owls on P. 35 and 37.

The following signs of this class may be enumerated :—

The lion's mask with the fleur-de-lis crest, P. 34, with a sign-group in smaller characters above it.

The seated cat, surrounded by smaller hieroglyphs, P. 23 *a* (Fig. 121 *a*), and placed by itself on the signet P. 36.

The crouching dog (or *wolf*), on face *a* of the primitive hieroglyphic prism-seal P. 5.

The wolf's head with protruding tongue: alone on the signet P. 40, coupled with sign-groups on P. 24 *a*, 44 *a*. It is also seen with the 'cross' on the clay bar P. 115 *a*.

Head of a long-eared animal, probably an ass: on the fractured prism-seal P. 48 *c*.

Horned owl: coupled with fleur-de-lis on the convoluted bead-seal P. 35, and the signet P. 37.

Dove preening her wings: standing by itself on face *a* of the three-sided bead-seal P. 31.

A *fish*: placed by itself on P. 28 *a*.

Spider: seen by itself on the primitive hieroglyphic prism-seal P. 5 *c*, preceded by the adze and 'trowel' on P. 29 *b* of Class B.

These signs may well be personal or 'canting' badges, answering to the distinctive appellation of individuals. In this case we may either suppose that they were simply *cognomina* such as 'Lion', 'Wolf', 'Cat', &c., or that the persons referred to bore

compound names into which these appellations entered. The lion's mask combined with the lily spray, and the special characterization of the wolf's head, dove, and owl, rather point to compound structure. In either case, such name-forms would answer to a wide European usage.

It will be shown that almost all these *types parlants* are connected with groups or with single word-signs which, both from their apparent ideographic value and their recurrence on seals, we have good reason for identifying with official titles.

'Family Tree' of official formulas and personal devices.

A specially valuable illustration of these presumably official formulas is supplied by a closely interrelated group, consisting of the gate and human leg, with or without the Y sign, the 'trowel' and human eye, and the arrow-head and 'trowel',

In Table XXII (Fig. 119) I have put together in a rough diagrammatic form the various connexions in which the 'canting' badges in question stand with these recurring groups, as well as their combinations with certain other formulas of the same official character.

Those belonging to the more primitive hieroglyphic Class A are placed here in the upper section of the diagrammatic Table; those of Class B, which must be of somewhat more recent date, are placed below.

For the sake of clearness the signs are here given in their most normal forms, and are set in the same direction—namely, from left to right. The initial X marks have been also inserted where they could be supplied from any of the specimens.

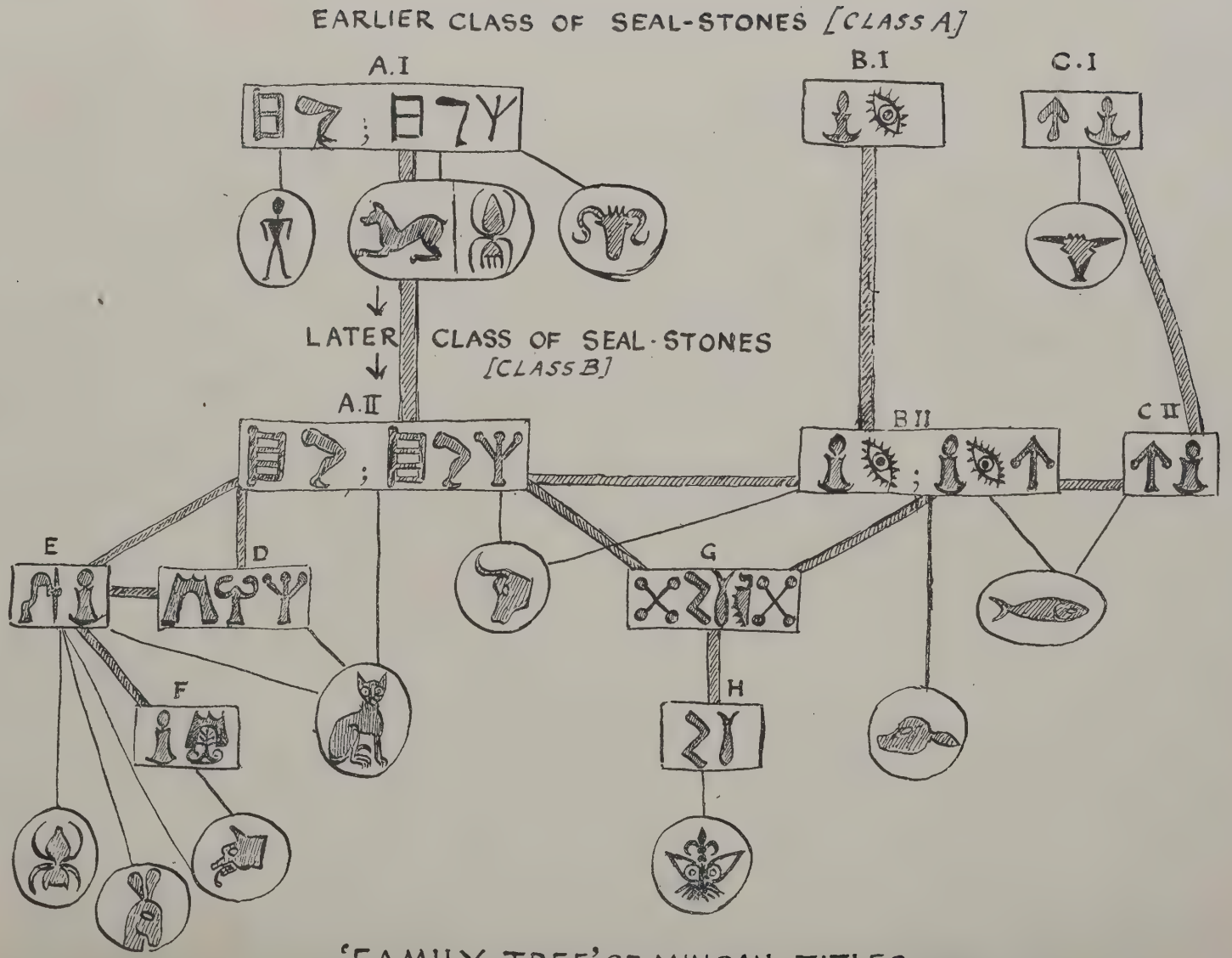
In this way the whole series of sign-groups, representing what we may venture to regard as Minoan titles, is seen to develop itself into a kind of 'Family Tree'. The personal badges themselves are here shown in some cases to recur in successive generations.

The gate and leg series (A) is taken here as the central stem, with the ancestral types of two collateral branches—human eye and 'trowel' (B) and the 'arrow' and 'trowel' (C)—on either side. It will be seen that the descendants of these (B II, C II) constantly intermarry, as it were, with the representatives of the main line (A II), that is to say, that they appear on faces of the same seal-stones as those showing the gate and leg.

That several of the sign-groups on these signets are official formulas rather than personal names may be fairly inferred from their continual reappearance over what must have been a considerable period of time. The prototypes of the principal groups A, B, and C are, as we have seen, already found in Class A representing seal types of a distinctly earlier and more primitive age than those of Class B.

Those of Class A would in the main belong to the First Middle Minoan Period; those of Class B, to the Second and the Third division of the Middle Minoan Age.

The occurrence in several cases of the dividing X-mark on vertical lines of



'FAMILY TREE' OF MINOAN TITLES AND PERSONAL BADGES.

TABLE XXII. Fig. 119.

partition shows that among the signs used in this group of formulas, the 'gate', 'leg', 'eye', 'template', 'trowel', and 'arrow' could on occasion be used separately with an ideographic value.

It further appears that the signs made use of in the above groups are in almost every case capable of a more or less obvious interpretation, expressive of official functions.

Recurring official formulas and their ideographic signification.

Thus the 'gate', as already observed, is evidently appropriate to a 'Keeper' or 'Guardian'. The bent human leg, indicative of advance, might well betoken a leader, and express an official title analogous to '*Dux*', Ἡγεμών, or the Saxon *Heretoga* (the German *Herzog*). The human eye is the natural emblem of an 'Overseer'.

Moreover, several signs of the same class and of kindred signification are found placed together so as to produce the cumulative result referred to above.

The coupling of an adze of Egyptian form with the 'trowel' in E—thus combining as it does the carpenter's and mason's crafts—supplies the collective signification of a 'builder'. We have here a perfect analogy to the Egyptian combination of the 'adze' and 'saw' to convey the same idea, and the parallel is the more interesting from the fact that this combination entered into one of the most exalted titles of the Early Pharaonic Period. A saw of the Egyptian form, perhaps referring to a similar title, occurs in the formula given under G. In F, again, we find the 'trowel' coupled with the 'template' sign, as if to mark the title of 'founder and embellisher'.

The prism-seal P. 29, which supplies the formula in which the spider is coupled with the 'adze' and 'trowel', exhibits what appears to be another title of considerable interest in which a double axe and gate are followed by the floral symbol, No. 91. On the sealing P. 59 we see the double axe and gate separated by a cruciform sign. Considering the special sanctity of the double axe as the fetish of the great Minoan divinities, we may with great probability detect in these combinations a reference to some such priestly title as Keeper of the Place of the Axe (Λαβύρινθος).

Table XXIII (Fig. 120) gives a series of these official signs with their ideographic interpretation and their probable signification when combined.

The 'arrow', emblem of the chase or of war, which is coupled with the human eye and the 'trowel' seems less congruous in the latter case. It may, however, be taken to indicate that the personage referred to was a hunter or warrior as well as a patron of more peaceful arts.

It is possible that though the ideographic element is so well represented in the present series, certain sign-groups should rather be taken as possessing a phonetic value. It looks, moreover, as if in some cases the two elements were combined. Thus on G (from P. 27 *c*) the initial sign, a saw of Egyptian form, may, as suggested above, stand as the ideographic symbol of a royal builder. But the two succeeding characters, the 'sepia' and (a derivative, as shown above, p. 211, No. 84, of the 'serpent' sign), are of an incongruous nature, and may have performed purely phonetic functions, as the syllables of a name. As H (from P. 34), these same characters prefaced to the lion's mask conveyed, perhaps, the proper name of a prince of whom the lion's

mask itself was rather the personal badge or appellative. That the animal figures connected with the groups should be taken in a personal relation can hardly be doubted.

It is interesting to observe that the oldest examples of the gate and leg series, as shown on the bead-seals, P. 1 and 10 respectively, are associated on other faces of the stones, in the one case with a male figure—confirming the personal application of the formula; in the other with two of the *types parlants* already referred to, namely,

	SIGNS		SUGGESTED MEANING		COMBINATIONS
1		Gate or Door	Keeper or Guardian	With 2	Guardian and Leader
2		Bent Human Leg	Leader	With 1	Guardian and Leader
3		Human Eye	Overseer or Governor	With 4	Overseer and Builder of Palaces
4		Trowel	Mason Bricklayer Builder	With 5	Builder or Founder
5		Adze	Carpenter Builder	With 4	or [of Palaces]
6		Template	Wall-painter Beautifier	With 4	Founder and Beautifier of Palace Sanctuary
7		Sacred Double Axe [Labrys]	Place of the 'Labrys'	With 1	Guardian of the 'Labrys' Sanctuary
8		Arrow	Hunter Warrior	With 4	Warrior and Founder

Fig. 120 (Table XXIII). Official Titles.

the crouching dog and the spider. The animal figures, occurring thus on a signet type of the more primitive style, must in this case be regarded as the canting badges of an earlier generation.

To the later generation of the 'gate and leg' family, indicated by A II, are appended other closely related groups, of which D is found four times occupying another face of the same seal. Another of these, E, reappears on P. 29 *b* with the addition of the spider, and on P. 48 *c* with the ass's head. Through E, in combination with F, the 'gate and leg' is linked with a group showing the wolf's head. The

associations of A II further include the seated cat and the bull's head, and the union of A II and B II leads through G and H to the lion's mask. A certain cousinhood is thus further established with the offshoots of the collateral branches B II and C II, including the calf's head and the fish.

In Table XXII then we have presented to us a kind of 'family tree' of what, *ex hypothesi*, may be regarded as the names and titles of Minoan princes, and bearing on its branches, like so many scutcheons, a whole series of *types parlants*, in all probability representing their personal badges or *cognomina*.

Similar personal badges recurring in different generations.

In some instances we find the same or closely allied animal devices as those that are connected with the earlier group of signets reappearing in the later class. On a seal of Class A, already referred to, the leg and gate is associated with a crouching animal, either a wolf or dog (Table XXII). In H, on the other hand, we see the wolf's head placed beside the affiliated adze and 'trowel' formula on a seal of more advanced style. The spider, again, which may indicate a connexion with textile industries, belongs to both classes. But these instances of the recurrence of personal badges are of a different order from the continuous survival of such official formulas as the leg and gate. They take place *per saltum* and suggest a very usual law in patronymics by which ancestral names recur after an interval, often in alternate generations.

The combination of similar official titles with various appellative types of a personal nature belonging to successive ages makes it quite conceivable that as the materials for comparison are enlarged, it may be ultimately possible to distinguish the royal names and dynastic succession in Minoan Crete.

Titles of priest-kings.

The character of some of the ideographs, as well as their persistent recurrence, certainly lead to the conclusion that among them are to be found the titles applied to the actual priest-kings. It is even possible that the name of Minos, which according to the Cretan tradition was applied to more than one prince, may be of the same nature as Pharaoh,[1] which in the Bible becomes almost a personal name,[2] or the Libyan Battos, recorded by Herodotus[3] to have been a native name for 'king', and which, indeed, has been compared with the Egyptian royal title *Byty*.[4]

The original meaning of this latter word, as noted above,[5] was equivalent to 'the bee-keeper'—the 'sealer of the honey jars' being one of the highest of the subordinate titles. In this connexion it is worth observing that on the seal-impression P. 75 *c* the bee is coupled with the 'Palace sign', and that on P. 20—of which face *a* presents the gate, leg, and ⅄ formula, and face *c* is the fellow title seen in Table XXII D—the bee appears on the remaining side in company with the bent leg and other signs.

Of all the groups that may be confidently regarded as official titles the gate and leg, sometimes associated with the ⅄ sign, is the most persistent. In its earliest forms

[1] Derived from the Egyptian *Per-ʿo*, the original signification of which was 'Great House' or 'Palace'.

[2] Cf. 'Pharaoh, King of Egypt,' Exod. vi. 11, &c. See Cheyne, *Encyclopaedia Biblica*, s. v. 'Pharaoh'. So, too, Herodotus (II. iii) makes it a personal name in his King Pherôn (or Pherôs), son of Sesostris.

[3] IV. 155.

[4] Petrie, *Royal Tombs of the First Dynasty*, Part I, p. 36.

[5] pp. 212, 213. Cf. Newberry, *Scarabs*, pp. 30, 31.

we find it associated with a human figure. Under a later aspect we shall see it closely connected with the first attempt at human portraiture. The signification of Guardian and Leader implied by the 'leg and gate' is frequently supplemented on successive faces of the same seal by a title represented by the 'adze' and 'trowel', natural to the founders of the great Palace Sanctuaries, and by its companion formula (Table XXII F), in which the 'adze' is replaced by the 'template' sign, the symbol of interior decoration.

Royal signet.

It is, therefore, of great interest to notice that these two characteristic formulas, together with that given in D of Table XXII, appear on the exquisitely cut cornelian prism-seal[1] P. 23, here reproduced (Fig. 121) from a drawing by M. Gilliéron. The scrolls that fill the upper and lower spaces of face *c* of this seal bear a close analogy with part of the foliate designs on a magnificent polychrome vase found on the Palace site at Knossos belonging to the borders of the Second

a *b* *c*

FIG. 121.

Cornelian Prism-seal found near Knossos.

and Third Middle Minoan periods, and which excels in richness of decoration any other known product of this ceramic style (Fig. 122). It must be said of the seal itself, which was found at or near the site of Knossos, that of all the hieroglyphic specimens yet found it has the best claim to represent the signet of a Minoan priest-king. It will be further seen that the striking decorative parallels between this seal and the polychrome vessel afford a clue to its approximate date. The prince to whom it belonged would have reigned about the close of the twelfth or the beginning of the thirteenth Egyptian dynasty, or, according to the new chronology, in the early part of the eighteenth century B.C.

The principal type of face *a* is occupied by the figure of a cat-like animal accompanied by the gate, leg, and ᛉ formula, and to the right by a snake, which may be taken as having a direct relation to the cat, which seems to be the personal badge of the owner of the seal. The snake, as appears from the contents of early Cretan shrines, represents the chthonic aspect of the Minoan Mother-Goddess. It is also

[1] Purchased by me in Candia in 1899.

noteworthy that there was found in the Palace Shrine of the Goddess a small figure of a spotted, cat-like animal, which apparently rested on the head of a votary, who herself holds out two snakes. The importance of the personage, of whom we may regard the cat as the canting badge, is shown by its reappearance as the sole type on another more or less contemporary signet.

On face *b* of this prism-seal we see the companion formula (D) set, like the inscription of an Egyptian cartouche, in a reserved space between two arched designs of highly elegant character, each of which seems to contain a triple group of palmettes. This motive, as has been shown above,[1] has a special relation to the lowest of the three signs engraved in the present group, which seems to be a form of 'template' for

Fig. 122. Polychrome Vase from Knossos (Close of M. M. II).

repeating this palmette decorative combination. On another prism-seal the palmette itself is seen in the arch of the template.[2]

On face *c*, between two foliate scrolls of bold and beautiful execution, referred to above, is the adze and 'trowel' group. These, like the 'template' sign of face *b*, may, as already suggested, have reference to the achievements of a Minoan prince as a builder and decorator of a Palace sanctuary, as patron of the arts, and of all that in later tradition was prefigured by the name of Daedalus.

Signet impressions with portraits.

There is, moreover, another interesting piece of evidence which directly connects the Ψ, leg, and gate formula, here applied to the 'cat', with the actual effigy of a Minoan personage. On a sealing (Fig. 123) from the 'hieroglyphic' deposit of the Palace, beside the impression of the face of a prism-seal like the above, of the same advanced fabric, with these three characters, there appears another stamp from a seal

[1] pp. 177, 178.

[2] Pl. II, P. 24 *a*.

of the round 'signet' type exhibiting the portrait of a male head. The features are sharply characterized, with an aquiline nose and the waving hair that meets us in some of the Palace frescoes (Fig. 124). The design must be regarded as the earliest attempt at real portraiture yet discovered in any part of the European area, and that it should have been attempted at all goes far to prove that we have here the actual likeness—curiously Armenoid in its general traits—of a Minoan dynast. On another sealing from the same deposit the head of this adult male personage is associated with the impression of a second signet showing the profile head of a very young boy, presumably his son (Fig. 125). We seem here to have before us an example of an 'association' of the kind for which we have been accustomed to look on the coinage of the Roman Empire.

Portrait of priest-king and his son.

FIG. 123.
Sealing with Portrait Head.

It is a natural inference that the official formula belonged to the personage with whose effigy it is thus brought into connexion. From the contemporaneity of style we may, indeed, go a step further and attribute to the same prince the fuller title as seen on the cornelian prism-seal, together with its personal device, the seated cat.

FIG. 124.

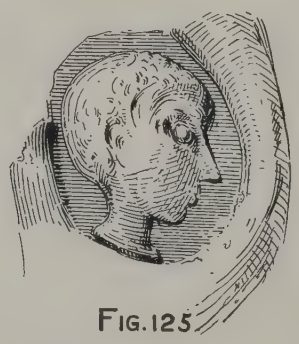


FIG. 125.

Portrait Heads associated on Sealings.

Should this Minoan portrait, recovered thus from the Palace archives at Knossos, be indeed that of an actual priest-king, the architectural references in the titles may have a historical connexion with the building.

PART III

THE PHAESTOS DISK

III. § 1. SUPPLEMENTARY REMARKS ON THE DISCOVERY AND GENERAL CHARACTERISTICS OF THE DISK

Results of further study.

THE summary account of the Phaestos Disk which appears in Part I of this volume,[1] derived from a preliminary study of the photographic copies courteously supplied me by Dr. Pernier, was already in print before I had the advantage of studying the results arrived at by the discoverer himself. This circumstance is, in some respects, not without its advantages, since the provisional conclusions to which I was led in the earlier part of this work have at least the value of having been derived from an independent study.

Dr. Mariani, the editor of the *Ausonia*, has now supplied me with an advance copy of Dr. Pernier's full and excellent publication of the Disk, accompanied by detailed and careful drawings of the signs by Signor Stefani, together with photographs taken when the object was more fully cleaned. Finally, I have been able to study the Disk itself in the Museum at Candia. Under these circumstances it seems desirable to give a more detailed account of this unique hieroglyphic monument, and at the same time to examine the conclusions to which its discoverer has been led.

The Disk found in M.M. III stratum.

The Disk itself was found in a rectangular repository, analogous to the '*Kaselles*' of the Knossian Palace and of Hagia Triada. This repository formed part of an annexe to the Palace at Phaestos, which was brought to light under some Hellenistic constructions, outside its north-east angle.[2] Although the soil within this rectangular cavity showed signs of disturbance and contained a few intrusive fragments, some of them of late Greek date, the prevailing character of the ceramic remains found in the same stratum with the Disk shows, as Dr. Pernier has rightly recognized,[3] that they belonged to the concluding phase of the Third Middle Minoan Period. The painted vessels represented here and in some adjoining cists of the same character[4] are in their general appearance identical with those that both at Knossos and at Phaestos mark the close of the earlier Palace. They thus belong to the date of the 'Temple Repositories' at Knossos and to the stratum containing the alabastron lid inscribed with the name of the Hyksos King Khyan, the approximate date of which, as shown above, may be placed about 1600 B.C. It is in this stratum, at Knossos so widely extended, that inscribed documents of

[1] See above, pp. 22 seqq.

[2] See Dr. L. Pernier, *Ausonia*, 1909, pp. 255 seqq. and p. 257, Fig. 1.

[3] *Op. cit.*, pp. 260–4.

[4] *Op. cit.*, p. 261, Figs. 3, 4; p. 262, Fig. 5; p. 263, Figs. 6, 7.

Disk found with linear tablet of Class A.

the Linear Class A first appear, and it is therefore of special interest to note that a broken tablet of this class was found in the repository with the Disk.[1] To the full import of this fact there will be occasion to return.

The Disk itself is composed of such refined clay that it is compared by Dr. Pernier with the material of the 'egg-shell' cups of the Knossian Palace fabric. Dr. Mackenzie, however, who is a specially competent judge in such matters, is of opinion that the clay is not Cretan. The Disk is not perfectly round, the diameter varying from 158 to 165 millimetres, while its thickness is from 16 to 21.[2] The characters were stamped in relief with punches when the clay was wet, each separate variety of sign being impressed in all cases by the same stamp, so that the total number of the stamps used was thus 45, answering to the number of the signs. Dr. Pernier suggests that their material was hard wood or ivory.[3] It seems possible, however, that they were of metal cast in matrices of engraved steatite.

Method of imprinting the characters.

Their numbers and arrangement.

Face A (Pl. XII and Fig. 128) contains 31 sign-groups, separated from one another by incised lines, and containing 123 signs in all. Face B (Pl. XIII and Fig. 129) presents in the same way 30 groups and 118 signs. The total number of characters is thus 241, and of the groups, 61. The ends of the inscription on both sides of the Disk are marked by a line showing five punctuations. Another curious feature in the inscription, to be referred to below, is the marking off of certain signs at the beginnings of groups by a vertical or sloping dash below.

It will be seen that the arrangement of the inscriptions on both sides of the Disk, winding outwards from the centre, presents a prima facie resemblance to that of an inscription of the Linear Class A written in some kind of ink in the inside of a cup from the Palace site of Knossos.[4] In that case, however, the inscription is not, as is the present one, spiral and continuous, but consists of two concentric rings of writing round the initial group.

Arrangement compared with Minoan.

On the other hand, on some of the clay bars and labels from Knossos we see at times a curved and incipient spiraliform arrangement of the sign-groups[5] which shows a certain affinity with the more elaborate ordering of the inscriptions on the Disk. The guiding lines above and below, with cross-divisions between the several sign-groups, also find analogies in the Minoan system. Horizontal lines accompany the inscriptions in both the linear classes, but on those the ends of the sign-groups are marked by short upright strokes or dots. In the case of some of the Minoan hieroglyphic inscriptions, however, we have both the guiding lines above and below, and vertical lines uniting them at intervals which mark the division between one sign-group and another.[6]

[1] *Op. cit.*, pp. 266 seqq. and Fig. 10. The signs present a few individual peculiarities, but in their general aspect are quite characteristic of Class A. Careful comparisons with linear signs of this class from Hagia Triada are given by Dr. Pernier on p. 269 (Fig. 11).

[2] *Op. cit.*, p. 271.

[3] *Op. cit.*, p. 278. Dr. Pernier does not think that the punches were either of stone or metal.

[4] 'Knossos,' *Report*, 1902, p. 108, Fig. 66 *a*.

[5] e. g. P. 100 *a*.

[6] Compare, for instance, P. 100, 117. At the same time, as noticed above (p. 251), the initial χ mark more frequently denotes the beginning of the new group. On P. 100 and elsewhere we see this superimposed on the vertical dividing line.

III. § 2. THE HIEROGLYPHIC SIGNARY OF THE PHAESTOS DISK

Table XXIV contains a complete synopsis of the signs represented on the Disk. The figures are copied from my own tracings, and, though not so complete as the excellent drawings prepared by Signor Stefani for Dr. Pernier's publication, may yet have an independent value as regards some details.

It will be seen that the subjects group themselves into headings like those of the regular Minoan hieroglyphic series. Thus we have :—

1–9. The human body and its parts (including articles of dress).
10–23. Arms, implements, and utensils.
24. A building.
25. A ship.
26–34. Animals and their parts.
35–39. Plants and trees.
40–45. Uncertain objects.

CATALOGUE OF SIGNS ON PHAESTOS DISK (see Table XXIV)

Catalogue of signs on Disk.

1. Marching figure of a man in short tunic and belt. The crown of his head shows a slight crest which is possibly due to a summary attempt to indicate that he is wearing a crested helmet.

2. Head of a man in close-fitting crested helmet. For comparisons with the head-gear of the Pulasati, &c., and of a figure on the Enkomi casket see above, p. 25.

3. Head of a man depicted as bald, or with a close-fitting cap. An 8-shaped mark is visible on the cheek. This, as Dr. Pernier has suggested,[1] may indicate a tattoo mark, or a painted ornament such as appears on certain Minoan figures.

4. Naked man with his arms bound behind his back; evidently a captive.

5. Naked male child. The characteristic outlines of the forepart of the body, the helpless attitude, and the comparatively small size of the figure sufficiently warrant this interpretation (Pernier, No. 3).[2]

6. Woman with the breasts apparently bare, wearing a girdle, a short gown, and a skirt below. An object seems to hang from her girdle. The arrangement of the hair as noted above[3] curiously recalls that of the male Shardanas of the time of Rameses II. The whole aspect of this figure with its exaggerated breadth of waist contrasts strongly with the Minoan and Mycenaean female types.

7. I have taken this sign to represent a woman's breast.[4] Dr. Pernier[5] would see in it a *pileus* or cap. I have suggested below[6] that the breast sign is the symbol of a female divinity.

[1] *Op. cit.*, p. 281 and note 1.

[2] Dr. Pernier (*op. cit.*, p. 281) describes the figure as that of a man 'nudo o coperto soltanto da una corta camicia'. He notes the signs of 'organic weakness', which naturally explain themselves if we regard the figure as that of a child. The appearance of a 'shirt' seems to be simply due to the attempt to render the prominent abdomen.

[3] See p. 25.

[4] See above, p. 24.

[5] *Op. cit.*, p. 292 (No. 39).

[6] See p. 291.

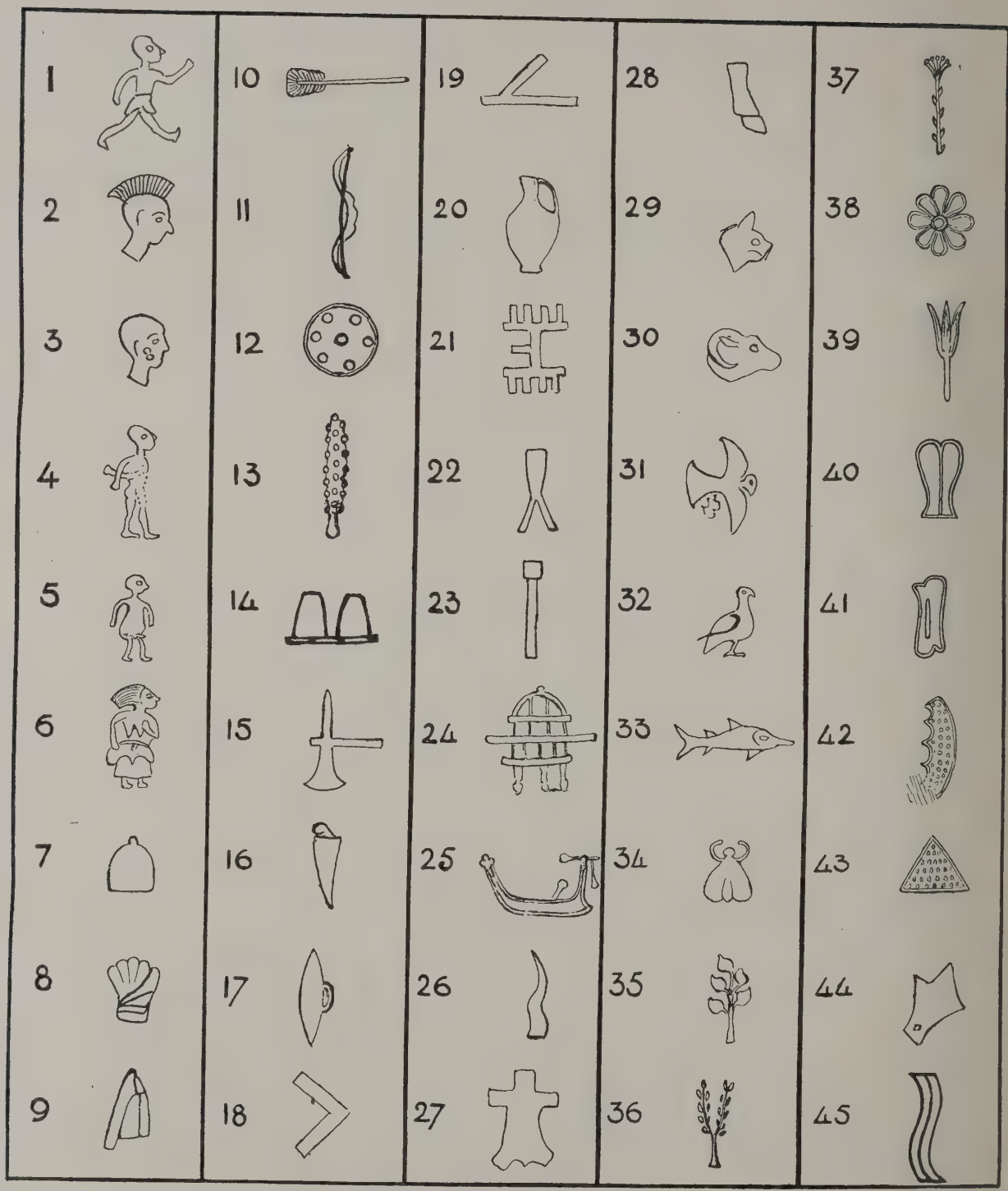


Fig. 126 (Table XXIV). Signs on Phaestos Disk.

8. Fist bound with *cestus*, like those of Minoan pugilists.[1]

9. This sign has every appearance of being a kind of tiara. There seems to be some analogy between this and certain forms that appear in Hittite inscriptions (Fig. 127 *a*[2], *b*[3]). Fig. 127 *b* shows an early form of the Persian *mitra*.

a *b*

FIG. 127. Hittite Tiaras.

10. Arrow. The arrow sign in a more cursory form appears in the Minoan series.

11. Horned or 'Asiatic' bow.[4] This type of bow, as appears from seals, is already found in Crete by the beginning of the Middle Minoan Age. In the 'Arsenal' Magazine at Knossos, moreover, belonging to the close of the Palace Period, tablets relating to horns of the *Agrimi* or Cretan 'ibex', evidently used for the manufacture of such composite bows, were found, together with others relating to arrows, and in association with large stores of the arrows themselves.[5] The Asiatic bow, without the string, is a Hittite sign of frequent recurrence.

12. In this sign I have recognized a round shield[6] with a central and six peripheral bosses. Dr. Pernier[7] appositely compares it with a Hittite sign found at Jerabis.[8] He remarks: 'If the Phaestos Disk be a matrix, then this sign in its positive aspect would show raised bosses and might represent a shield: in the opposite case being furnished with circular cavities, it would rather suggest a libation table or κέρνος seen from above. It is not without hesitation that I would put forward the hypothesis that the sign in question may represent in a conventional guise the Disk itself.' It must be said that the repeated appearance of this sign in company with the warrior's head in a crested helmet is certainly best consistent with the view that it represents a shield. The close comparison with the Egyptian sign denoting corn on the threshing-floor must still be noted.

13. This looks like a knotted club, such as that attributed to Hercules.

14. The flat tops of the two prominences in this figure as well as the slots in the base are characteristic features of manacles, the slots being for the attachment of thongs. I am unable to subscribe to Dr. Pernier's view[9] that this represents the 'mountains' or regional sign. We should expect pointed or at least rounded prominences.

15. Pickaxe.

16. Apparently a knife with curved back.

17. Perhaps an instrument for cutting leather with a curved handle above.

[1] See above, p. 27.
[2] Hamath. Messerschmidt, *Corpus Inscr. Hettit.*, T. iv.
[3] Jerabis. Ib. T. xi.
[4] For a fuller reproduction of this see Signor Stefani's drawing in *Ausonia* (p. 290, No. 30).
[5] 'Knossos,' *Report*, 1904, pp. 57 seqq.
[6] See above, p. 25.
[7] *Op. cit.*, p. 291 (No. 37).
[8] Messerschmidt, *C. I. H.*, T. xiii. 7, and cf. T. xl. 17.
[9] *Op. cit.*, p. 287 (No. 23).

18. A carpenter's angle. This occurs in the regular Minoan series (No. 42).

19. This resembles a kind of plane.

20. Handled vase. The handle is clearly traceable in one of the earlier photographs of the Disk, though subsequent cleaning has effaced it. The mouth of the vessel and the spring of the handle suggest derivation from an original *askos* type. These features are not found in jugs of Cretan fabric as late as the close of the Third Middle Minoan Period, but are common in the contemporary Cycladic wares at Melos and elsewhere.

21. A curious double comb or rake, perhaps connected with the weaver's craft. A single four-toothed comb with a short handle occurs as an ideograph in the Cretan linear series (Class B).

22. This may be a form of double pipes with a long mouth-piece. A wooden musical instrument of this character (*Svirala*) is in use among the Serbian and Croatian peasants.[1]

23. Possibly a square-headed mallet. Dr. Pernier[2] regards this as a column and capital answering to a particular kind seen on Minoan reliefs and architectural paintings. From this view I venture to differ for the following reasons: (1) The columns in question are either continued above the capital or at any rate, as on the *rhyton* of Hagia Triada, show a fragment of an architrave above. (2) The capitals themselves are oblong, not square, and with their greatest width horizontally. (3) They show disks on their borders, resembling the ends of small beams.[3] (4) They are probably not capitals at all in the ordinary sense, but oblong frameworks encasing the ends of cross-beams.

24. Pagoda-like building. For a comparison of this with the traditional Lycian architecture I must refer to my remarks in Part I of this volume.[4] The evidently wooden columns in front terminate below in a kind of reversed cone, another structural point that shows an entire divergence from known Minoan usage.

25. Ship, with, apparently, an arrow pointing from its prow. A pendant object is also seen hanging from the forepart of the 'arrow'. The vessel has a well-marked 'beak', and the stern terminates above in a trifoliate ornament. From the forepart rises a knobbed indeterminate object.

As noted above in Part I,[5] the absence of a mast distinguishes the ship on the Disk from all the figures of vessels that occur in the hieroglyphic or linear scripts of Minoan Crete.

On the other hand, the combination of what seems to be the 'arrow' sign at the prow with a pendant attachment suggests some curious parallels with Egyptian 'nome' signs of early Dynastic or pre-Dynastic date. Especially is this the case with the symbols attached to what appear to be the 'forecastles' of Nilotic barges on a remarkable series of painted vases found in the prehistoric tombs at Nagada and other sites.[6]

[1] See A. J. Evans, *Through Bosnia*, &c. (1877 ed.), p. 22, Fig. 3. I noted there (p. 21) of these wooden 'double pipes' that they differed from the ancient *tibiae* in having their ends united by a long mouth-piece: 'the Y has become a Y.'

[2] *Op. cit.*, p. 289 (No. 27).

[3] Even such a small example as that on a clay sealing from Knossos (*Report*, 1903, p. 56, Fig. 35) exhibits this feature.

[4] See above, pp. 25 seqq.

[5] pp. 25, 26.

[6] See Petrie, *Nagada and Ballas*, Pls. LXVI, LXVII.

These signs, often weapons such as a double harpoon or the crossed arrows of Neith, are attached to poles rising from small towers at what appears to be the prows of the vessels,[1] and a little below these are two slanting appendages which afford a parallel to that on the present vessel.

26. Horn of ox.

27. Hide of animal, probably an ox. The half-hides or hides seen on one side only of a seal-impression from the 'Arsenal' Magazine at Knossos[2] afford a close parallel.

28. Ox's foot.

29. Head of an animal of the feline genus, seen in profile. The comparatively short head and general outline seem to me to weigh against Dr. Pernier's view that the head is that of a mastiff.[3] For its possible connexion with the great Goddess see below.

30. Head of a horned sheep or perhaps a moufflon, seen in profile. The facing head of a similar animal occurs in the Minoan hieroglyphic series (No. 67).

31. Flying bird, apparently an eagle, who seems to hold a serpent in his claws. The linearized representation of a flying eagle, but without the serpent, occurs in both classes of the Cretan linear script.

32. Seated dove. Compare the dove preening its wings, No. 79 of the Cretan hieroglyphic series, and also the bird No. 82, which, however, seems rather to be a duck.

33. Fish, probably rightly identified with a tunny by Dr. Pernier.[4]

34. An insect, possibly a bee seen from above.

35. A plant or tree sign.

36. The forked spray here shown closely resembles certain varieties of what has been described as the 'olive branch', No. 101 of the Minoan hieroglyphic series.

37. A plant with a fan-shaped flower and buds on either side of the stalk.

38. Marguerite or star-anemone. This floral design is a constantly recurring feature in Minoan and Mycenaean decorative art. It may be an assimilation of some indigenous flower to the Egyptian lotus as seen from above.

39. Dr. Pernier[5] is probably right in identifying this sign with the saffron flower, No. 88 of the Cretan hieroglyphic series.

40–42. Uncertain signs.

43. Triangle with internal granulation. The simple triangle occurs among the Minoan hieroglyphs (No. 130).

[1] The figures of these vessels with a central break to the line of oars and, apparently, two small towers on either side of it in the middle of the vessel have caused much discussion. I believe that the simple explanation is that we have here to do with a primitive attempt to draw the boats from the front showing both sides, and that the two towers really represent a single 'forecastle' near, but not at, the prow, which has been doubled by a primitive attempt at perspective.

[2] *Report*, 1904, p. 57, Fig. 20.

[3] Pernier, *op. cit.*, p. 284 (No. 12).

[4] *Op. cit.*, p. 284 (No. 10).

[5] *Op. cit.*, p. 286 (No. 21).

44. Enigmatic figure.

45. Dr. Pernier considers that this sign may be a conventional representation of water.[1]

III. § 3. ANALYSIS OF THE SIGN-GROUPS ON THE DISK

Sign-groups on Face A.

Face A (Fig. 128) may be said to be distinguished by its more martial appearance, since the head with the crested helmet appears in front of thirteen groups, in

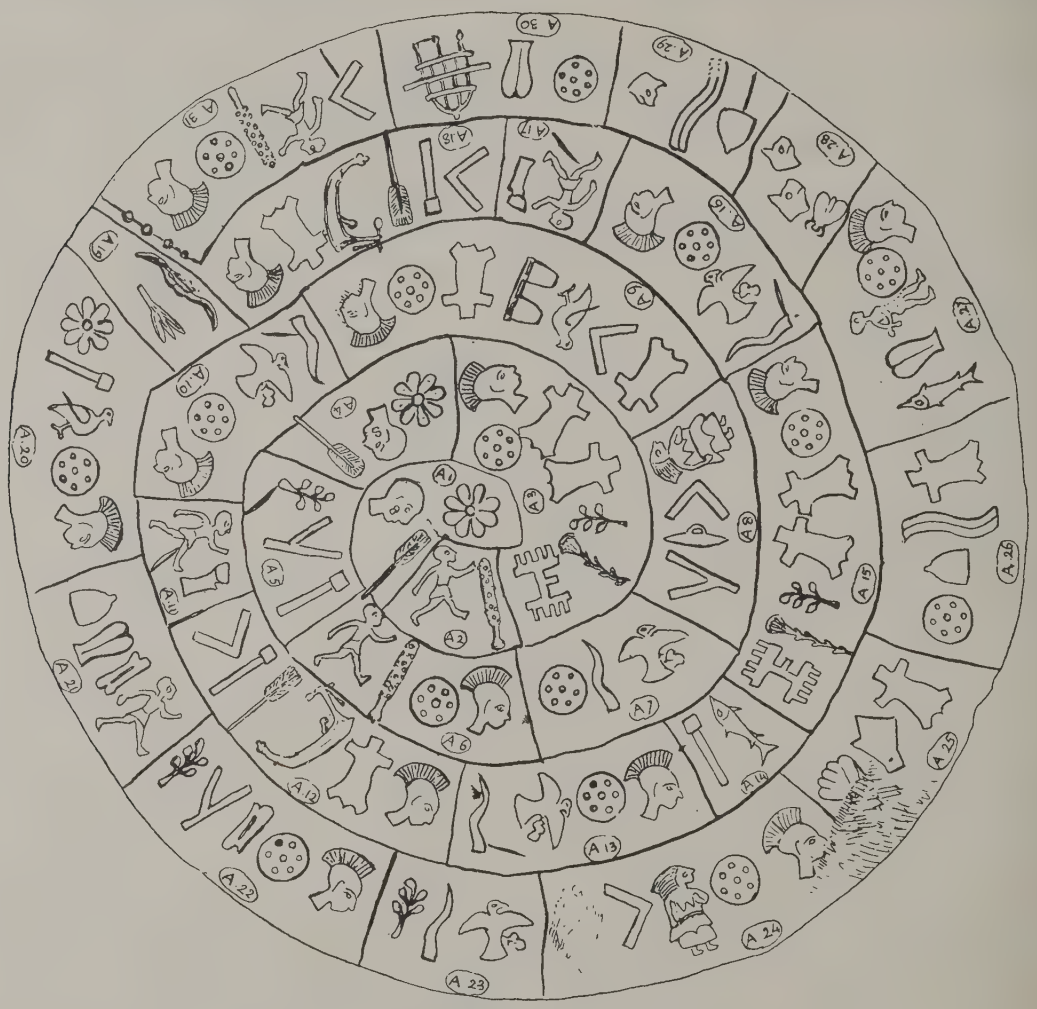


Fig. 128. Phaestos Disk. Face A.

twelve cases followed by the round shield.[2] Three others begin with the shield,[3] and shield and crested head together terminate the final group. In two cases

[1] *Op. cit.*, p. 287, No. 24.

[2] A 3, 6, 9, 10, 13, 15, 16, 20, 22, 24, 27, 31.

[3] A 7, 26, 30.

again the concluding signs of the group are the arrow preceding a head with a crestless, close-fitting cap.[1] Two groups, moreover, show the arrow-sign preceding a ship which has also an arrow pointing from its prow.[2] The rapidly marching male figure begins four groups[3] and ends another.[4] It is also noteworthy that in A 27 the shield and helmeted head are placed before a representation of a captive with his hands behind his back, and in A 24 before a figure of a heavily draped woman. Martial elements.

The shield and helmeted head, or the latter sign alone, in five cases follow what appears to be the figure of an ox-hide,[5] which in two instances is reduplicated,[6] and the ox-hide itself terminates two of the groups.[7] It is possible that these too have an ideographic meaning and represent the skins of sacrificed beeves. On the Sarcophagus of Hagia Triada the votaries are seen wearing the skins of slaughtered oxen. The ox-horns, again, appear in five places.[8]

Previous to the thorough cleaning of the Disk, Face B was considerably blurred. The more recent photograph, however, from which is drawn my tracing in Fig. 129, gives a practically complete version of its contents. Sign-groups on Face B.

The head with the crested helmet appears as a terminal in five places[9] on this side of the Disk, and, as on Face A, this sign followed by the round shield appears at the end of the whole inscription. The marching figure occurs five times,[10] on three occasions at the beginning of a group. The woman sign is seen twice, in both places in connexion with the plant, possibly a fruit tree.[11] On the other hand the female breast (No. 7), which is found three times on Face A, appears here in fifteen places,[12] being twice repeated in one group, and begins the whole inscription. It also forms the initial sign of the concluding group. The pagoda-like building also makes its appearance in five places,[13] twice in group 18. The ship with the arrow at the prow is depicted five times,[14] twice in connexion with the ox-hide.[15]

The fist armed with the *cestus* thong, which appears once on Face A,[16] is here introduced into four groups.[17] The analogy presented by this sign with the *cestus* worn by the Minoan boxers is very noteworthy and attests, as already remarked,[18] a certain community in sporting habits between the Minoan Cretans and those who used the hieroglyphic script seen on the Disk. The *cestus* used in Minoan religious sports.

This pugilistic symbol in three cases is found in juxtaposition with the female breast. It is interesting to observe that on a fragment of wall-painting found together with the 'Toreador' frescoes in the Palace of Knossos, and, like these, representing some sport of the royal arena, straps are seen bound round a female hand. The hand, however, in that case was not clenched, and the object may have been simply to strengthen the wrist for the acrobatic feats of the bull-ring in which girl performers also took part. It is not necessary, however, to suppose that the breast associated

[1] A 1, 4. [2] A 12, 18. [3] A 2, 6, 11, 17.
[4] A 21. [5] A 3, 9, 12, 15, 18. [6] A 3, 15.
[7] A 25, 26. [8] A 7, 10, 13, 16, 23.
[9] B 3, 14, 20, 28, 30. [10] B 14, 16, 19, 23, 24.
[11] B 3, 15.
[12] B 1, 3, 4, 5, 6, 7 (twice), 8, 10, 11, 13, 21, 23, 29, 30.
[13] B 6, 18 (twice), 21, 26. [14] B 2, 9, 19, 22, 27.
[15] B 19, 27. [16] A 25. [17] B 5, 10, 12, 13.
[18] See above, p. 27, and cf. Dr. Pernier's observations, *op. cit.*, p. 283 (No. 7).

with the 'armed fist' on the Disk refers to the sex of the prize-fighters. The Minoan evidence points to the conclusion that the sports of the arena, whether of the cow-boy order or those exhibiting pugilists and wrestlers, were held in a religious connexion and in honour of a great Nature-Goddess. Both in Cyprus and Anatolia

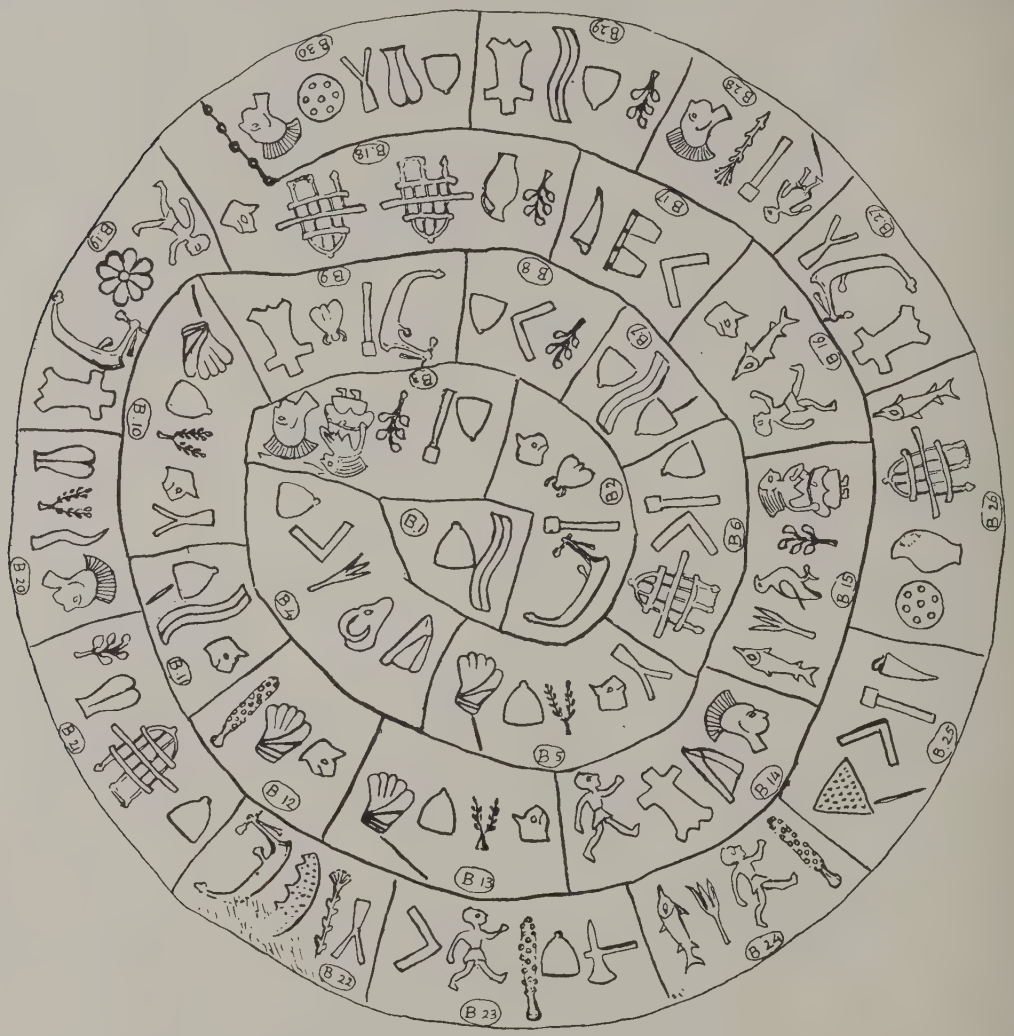


Fig. 129. Phaestos Disk. Face B.

Female breast: symbol of 'great Goddess'.

the female breast is seen as the most natural emblem of a kindred divinity, and certain breast-shaped ritual vessels from Minoan sites[1] show that the same symbolism prevailed in Crete.

[1] I may instance a remarkable breast-shaped vessel from Siteia belonging to the First Middle Minoan Period and a breast-shaped 'scaldino' from Palaikastro.

That the head of the feline animal here seen was connected with the Goddess is not improbable, and it is possible that it may, after all, represent a lioness, the regular guardian of the Minoan 'Rhea'. In any case it is certainly worth observing that the breast symbol is in five cases associated with it.[1] It is also noteworthy that in B 21 the female breast is placed before the pagoda-like building—a possible indication that it may depict a shrine of the Goddess. In B 18, on the other hand, the double representation of the building is preceded by the feline head.

Feline head in similar connexion.

It is assumed in the above remarks that the signs on the Disk are not infrequently used in an ideographic or determinative sense.

Of this usage there are several indications analogous to those that are found on the hieroglyphic documents of the regular Minoan series. Such are:

Evidences of ideographic element in sign-groups.

1. The reduplication of certain figures such as the ox-hide,[2] the feline head,[3] and the pagoda-like building,[4] which seems to give them a plural sense.

2. The evidence of what has been described above[5] as a 'cumulative ideographic expression' by which a picture sign is supplemented by one or more of the same class so as to complete the meaning that it is desired to express. In this way, for instance, the continual coupling of the helmeted head and round shield may be taken to complete the idea of a particular class of warrior.

3. There is a further presumption that certain figures that constantly appear at the head, that is, right-hand extremity of groups, must, from their general character, be also taken to be used in an ideographic sense. Thus the helmeted head and shield, which as already noted seem to be complementary signs, constantly appear in this position.

It is probable, moreover, that the highly pictorial figure of a pagoda-like building should in all cases be taken ideographically, possibly as representing a temple or temples. The very detailed figure of a woman, and the captive, may also be regarded as ideographs.

4. By a process of subtraction of elements such as the above it may be seen that other characters included in the sign-groups on the Disk must also be capable of standing by themselves with an independent meaning.

But characters in part phonetic.

That there is a decided ideographic element among the characters on the Disk it is impossible to deny. On the other hand Dr. Pernier[6] is no doubt right in concluding that the inscription consists, in part at least, like those of the ordinary Minoan class, of phonetic characters. The divisions into which it is broken up may, as in the other examples, be regarded as representing separate words, with complementary illustrations of an ideographic and determinative nature, rather than as whole sentences.

Many of the characters here are evidently used with a syllabic value, and it is interesting to compare the analysis of the inscriptions from this point of view with that arrived at in Part II, § 10 (p. 248) above, from the glyptic and graffito inscriptions of the ordinary Minoan hieroglyphic class.

[1] A 29, and B 5, 10, 11, 12. [2] A 8, 15. [3] A 28. [4] B 18. [5] See p. 246. [6] *Op. cit.*, p. 295.

Numerical analysis of sign-groups.

Making a liberal deduction for the signs that seem to be here used with ideographic values the analysis of the sixty-one groups on the Disk leads to the following approximate results:

Numbers in groups.	Number of Examples.
1	12
2	25
3	21
4	3
5	0
	61

Comparisons with Minoan hieroglyphic groups.

For purposes of comparison the equivalent of these figures in percentages is given below, and is placed side by side with the percentages resulting from an analysis of normal Minoan hieroglyphic groups as gathered from both seals and graffiti.

Percentages derived from Phaestos Disk.		Percentages from Minoan Seals and Graffiti.	
Numbers in groups.		Numbers in groups.	
1	20	1	14
2	40	2	34
3	35	3	42
4	5	4	8
5	0	5	2
	100		100

It will be seen from the above comparisons that the number of cases in which we have apparently only a single sign to deal with, having the phonetic value either of the whole original word-sign or a part of it, is in the present case distinctly greater. The proportion of words composed of only two signs is also larger, while there is an appreciable falling off in those composed of four signs, and an entire absence of those with five. The contrast with the percentages derived in Part II above from Egyptian hieroglyphic groups is still greater.

On the whole, then, we are led to conclude that the development of phonographic signs with a single syllabic value was less advanced in the system to which the inscriptions on the Disk belong than in the ordinary Minoan.

III. § 4. NON-MINOAN CHARACTER OF THE HIEROGLYPHIC SYSTEM REPRESENTED ON THE DISK

Non-Cretan character of the Disk confirmed by further examination.

A more detailed study of the Disk has only confirmed the view already expressed in the first Part of this volume[1] that it is itself of non-Cretan origin, and that it probably attaches itself to an old Anatolian element of which some later traditions are to be found in Lycian remains. This would not exclude an insular area, such as the once Carian Rhodes, in close mainland contact.

Dr. Pernier, indeed, in his account of the Disk, while admitting[2] that the signs here delineated 'show a noteworthy divergence from the ordinary Cretan hieroglyphs', and that 'the doubt seems legitimate whether the writing on the Disk belongs to the same system' as the latter, is yet inclined to regard it as being of Cretan fabric. He considers that the different aspect of the figures on the Disk may in part be due to their possibly representing a 'different moment in the development of the Cretan hieroglyphic system'—a development of which, as he rightly suggests, 'the fictile inscriptions of Knossos reveal the last stage.' In part he thinks that this divergence may be due to the difference in the technical processes employed for the production of the signs, in the one case by means of engraved seal-stones and graffiti on clay, in the other case by means of impressions from wooden or ivory punches cut in relief.

Objections to Dr. Pernier's arguments for a Minoan origin.

As regards this last argument it may be fairly observed that the difference in the technical processes here exhibited might be regarded as itself only another indication of non-Cretan origin. A difference, moreover, in technical production is not sufficient to account for the great variation in the subjects selected for characters. As regards the first argument, the archaeological evidence, as accepted by Dr. Pernier himself, shows that the Disk belongs to the lower borders of the same period—the Third Middle Minoan—to a slightly anterior stage of which the hieroglyphic archives of Knossos itself must be ascribed.[3] It is later, not earlier, than these.

Absence of Minoan hieroglyphs of constant occurrence.

The length and unique character of the document is also pleaded,[4] but, here again, the very copiousness of the material makes it all the more remarkable that many of the most frequent signs that appear both in their glyptic and graffito forms in the ordinary Minoan hieroglyphic system are conspicuous by their absence from the Disk. It is only necessary to cite such recurring forms as the 'eye' (No. 5), the 'trowel' (No. 18), the 'broad arrow' (No. 13), the 'double axe' (No. 36), the 'sieve' (No. 54), the Ψ and its vegetable variations, common to both classes of the ordinary hieroglyphic script.

System on Disk not a local Phaestian variety.

Finally, it is wholly impossible to accept Dr. Pernier's conclusion that the writing on the Disk represents a local hieroglyphic system of Phaestos parallel to but largely divergent from that of Knossos and the other parts of the island where the normal Knossian type of hieroglyphic script is found. The conclusion itself is counter to the whole trend of the archaeological evidence at our disposal, which tends to show that in all their main features the successive stages of the advanced Minoan culture present a

[1] Section 4, pp. 22–28.
[2] *Op. cit.*, p. 297.
[3] See above, p. 145.
[4] Pernier, *op. cit.*, p. 298.

curiously identical physiognomy in the different regions. The phenomena with which we have to deal suggest, at least during the Middle and the first part of the Late Minoan Age, a highly centralized administration in which there was little room for independent regional developments. The hieroglyphic seal-stones of Crete extend at any rate throughout the Central and Eastern parts of the island, and an example has been found at least as near Phaestos as the site of Gortyna.[1] But there is a still more decisive fact which has been strangely lost sight of by Dr. Pernier,[2] the discovery, namely, during the first year's excavation in the Palace of Phaestos, of an inscribed clay tablet,[3] the characters of which essentially agree with those of the normal hieroglyphic system as illustrated by the archives of Knossos. The close concordance that marks the architecture and disposition of the two early buildings and the character of their contents, as illustrated by the products of the ceramic and other arts, extends itself to their form of writing.

Hieroglyphic system of Phaestos the normal Minoan.

Nay, more, we see just the same revolution in the character of the script effected at precisely the same epoch in the two Palaces. At Knossos, in the stratum that marks the latest stage of the earlier Palace, the hieroglyphic script that characterizes a slightly earlier phase of the same building is seen to have been superseded by the linear script of Class A. At Phaestos, in the same deposit as that in which the Disk was found, and marking the last stage of the Palace, there occurred, as Dr. Pernier himself has recorded,[4] the half of a clay tablet inscribed on both sides in the normal linear script of Class A. In other words, the Disk belongs to a time when in Crete itself the hieroglyphic system had become obsolete. But in Anatolia, as we know from the Hittite remains, the hieroglyphic method of writing survived to a considerably later date.

Disk belongs to time when the Linear Class A was rife in Crete.

That we see upon the Disk a form of writing representing much the same stage of evolution as the hieroglyphic script of Minoan Crete cannot be doubted. A certain small proportion of the signs are indeed, as already noticed, the common property of both systems. Dr. Pernier is no doubt right in calling attention to a certain parallelism in the method of arrangement.[5] In both cases we find lines of division, and the Minoan inscriptions too show a curving order. The sign-groups are of about the average length, and there are the same indications of syllabic as well as of ideographic usage. On the purely artistic side, too, there are obvious points of resemblance. There is a marked naturalism about some of the figures—notably the tunny fish, the bird, the insect, and the heads of the ram and the feline animal, which is quite in keeping with the contemporary Minoan style.[6]

System of Disk nevertheless parallel with Minoan.

Yet this very fidelity to nature is itself a means of informing us that we have here to do with a somewhat different element, with non-Cretan fashions and costumes and a foreign system of architecture. Enough has already been said above[7] as to the comparisons suggested by the crested helmets and round shields with the accoutre-

Fashions seen on Disk the antithesis to Cretan.

[1] See above, p. 156 (P. 34).

[2] Dr. Pernier remarks, *op. cit.*, p. 306, 'il disco ci monstra quale era la scrittura in voga nella più antica reggia di Phaestos.'

[3] P. 121, p. 179 above.

[4] *Op. cit.*, pp. 266-271.

[5] *Op. cit.*, p. 298.

[6] Cf. Pernier, *op. cit.*, p. 299.

[7] See above, pp. 25 seqq.

ments of the later invaders of the Delta from the Southern Coasts of Asia Minor and to the later Philistine region of Canaan. We have seen that the woman's figure with its heavy broad proportions presents the most absolute antithesis to that of the wasp-waisted Minoan ladies. In the pagoda-like building there is a resemblance, that can be hardly accidental, to the traditional Lycian architecture with its projecting beams and hull-shaped roof. It may be here added that the Asiatic horn bow, so well delineated in No. 11, though known in Late Minoan times, was by no means the typical early form in Crete, which was that of the simple European and African class. The recognition in No. 9 of a kind of tiara affords another suggestive link with the Anatolian side.

Disk product of closely allied culture, probably existing in SW. Anatolia.

In the Phaestos Disk, then, and the hieroglyphic script that it presents, we may recognize the product of a parallel and closely allied culture existing somewhere on the South-West coastlands of Asia Minor and not improbably in the Lycian area. The people to whom it belonged may well have spoken a language closely akin to that of Minoan Crete, and the strong religious element that we seem to detect in it points to the cult of a Mother-Goddess, in her fundamental aspect and salient attributes a sister form of the Mother-Goddess of prehistoric Crete.

III. § 5. EVIDENCES OF METRICAL ARRANGEMENT IN THE INSCRIPTIONS ON THE DISK

The two inscriptions carefully balanced and adjusted.

It is time to consider certain remarkable phenomena presented by the arrangement of the inscriptions on the Disk. How is it, it may well be asked, that the inscriptions on both faces of the Disk are so evenly balanced? That they are not continuous is clearly shown by the dotted line, evidently a mark of termination, that occurs at the end of each. But how was it possible so nicely to calculate the size of the Disk itself that each face exactly contains the required number of sign-groups, leaving not a vestige of margin?

Copied from prototype.

It may be reasonably concluded that the inscriptions as stamped on the Disk were copied from a prototype showing the exact size of the round of clay required for the purpose. On the other hand the fact that the inscription on both faces fits into the same space is accounted for by the circumstance that the number of sign-groups was approximately the same on either side—thirty-one on Face A and thirty on Face B.

Two equal inscriptions with concluding word.

In this very close agreement of the number of the groups on the two sides of the Disk we have an indication of an artificial composition of which, as will be shown below, the distinguishing strokes beneath certain signs afford a further proof. It is probable, moreover, that the balance in the number of groups on either side is still more even. In conformity with Dr. Pernier the letters A and B have been here attached to certain faces of the Disk, but there is no proof whatever that this was the real order in which they stood. On the other hand, too, it is to be noted that the last sign on Face A—the odd No. 31—is divided from the rest of the inscription on that side by the dash under its initial sign. It is not improbable, therefore, that this sign-group represents a terminal word supplementary to the whole of the inscription as contained

on both faces. Adopting this as a working hypothesis, Face B really contains the first part of the inscription and Face A the second, and the body of the whole inscription is divided into exactly equal parts of thirty sign-groups apiece.

Initial strokes, incised at intervals.

A distinctive feature which at once strikes us in examining the Phaestos Disk is the strokes, generally sloping to the right but sometimes vertical, which recur at intervals under certain signs. These are evidently engraved by a hand accustomed to write from left to right, after the stamping of the characters themselves and while the clay was still moist.

The following signs are distinguished in the above manner:—

The female breast (No. 7); three times.[1]
The marching figure (No. 1); twice.[2]
The male child (No. 5); once.[3]
The fist wound with the *cestus* thong (No. 8); three times.[4]
The 'carpenter's angle' (No. 18); once.[5]
The ox-horn (No. 26); three times.[6]
The tree (No. 35); once.[7]
The triangle (No. 43); once.[8]

Such marks are always appended to the initial sign of a group, and there are 15 in all—9 on Face A[9] and 7 on Face B.[10] Since the upright cross lines that divide the inscription on both sides into sections must be reasonably taken to indicate the beginning and ending of the several sign-groups,[11] it is obvious that some other explanation must be sought for these more intermittent marks.

These strokes not designed to mark ideographs.

At first sight it seemed natural to suppose that these strokes below certain characters might perform an analogous function to the short lines or dots which occasionally mark off a single sign of a group both in the hieroglyphic and the linear class of inscriptions belonging to the regular Minoan series.[12] In that case there would be good reason for assuming that the strokes in question indicated that the signs with which they were connected stood alone, with an independent ideographic meaning, and not simply as a syllable or letter, forming part of a word.

But further examination of the material shows that this explanation will not hold. The same signs, which in some places appear with the mark attached to them, recur elsewhere (as shown in Table XXV), in a similar or identical collocation but without the distinguishing stroke.

What then is the meaning of these distinguishing marks, intermittently recurring, always at the beginning of sign-groups?

Strokes indicate beginning of sentences.

The most reasonable explanation that offers itself is that these strokes indicate the beginning of separate sentences or sections of the inscription. In the case of the first group on either face they are not wanted, as the beginning of the whole inscription is clearly shown, and they therefore do not appear.

[1] A 29, B 7, 11. [2] A 10, 17. [3] B 28.
[4] B 5, 10, 13. [5] A 31. [6] A 10, 13, 16.
[7] A 5. [8] B 25.

[9] The lower part of the 'fist and *cestus*' sign in A 25 is broken away and the evidence in this case is therefore uncertain: as, however, in the other cases where this sign appears at the beginning of a group (B 10, 13) the stroke is added below, it seems best to assume that it was so here.

[10] The faint line that crosses a corner of the 'breast' sign in B 1 seems to be an accidental scratch rather than a deliberate incision as in other cases under this sign. It is therefore omitted from the enumeration.

[11] This is Dr. Pernier's conclusion, *op. cit.*, pp. 294, 295.

[12] An example of this will be seen in P. 110*c* above.

According to this view the inscription on Face A is divided into 10 sections, and that on B into 8. To these must be added in each case another distinct break caused by the long descending line that on both faces occurs at the end of the eighteenth sign-group, so that the outer line of A and B begins with group 19.

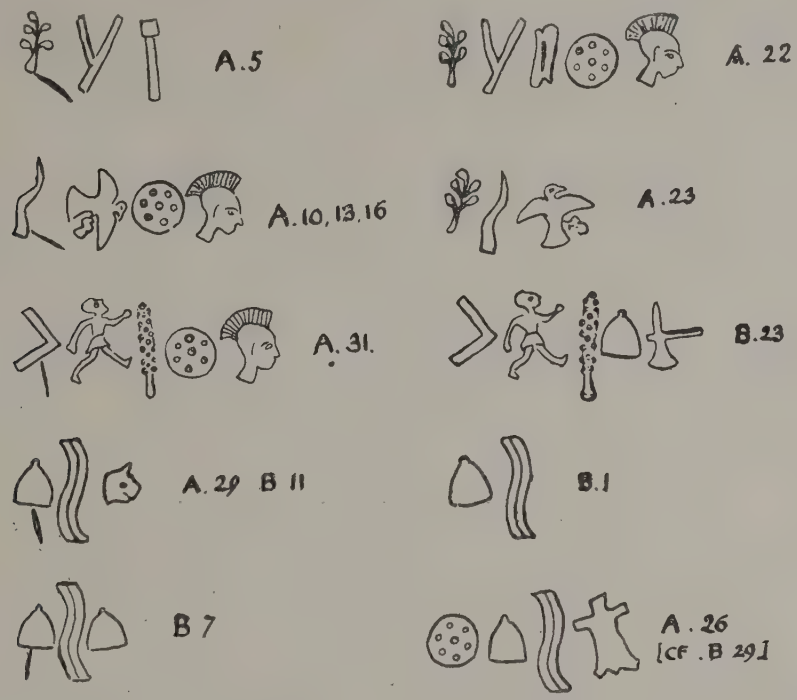


FIG. 130 (TABLE XXV). Signs in Similar Collocations with or without the Distinguishing Marks.

Comparing now the series of sign-groups as divided into sections by the distinguishing dashes on both faces of the Disk, we arrive at the following results :— Parallelism in arrangement on the two faces.

I (B)

1, 2, 3, 4 — 5, 6 — 7, 8, 9 — 10 — 11, 12 —
13, 14, 15, 16, 17, 18, | 19, 20, 21, 22, 23, 24 —
25, 26, 27 — 28, 29, 30.

II (A)

1, 2, 3, 4 — 5, 6, 7, 8, 9 — 10 — 11, 12 —
13, 14, 15 — 16 — 17, 18, | 19, 20, 21, 22, 23, 24 —
25, 26, 27, 28 — 29, 30.
(— 31)

It will be seen at once that there is a certain parallelism in the above two tables. Thus in the first line giving the sections up to 12 the first group of 4 and the last two groups of 1 and 2 respectively correspond. The only difference is that the second section of II (Nos. 5–9) is in I broken up into two sections (5, 6 and 7–9). In both cases, again, we have a break at the end of 24, that is, another series of 12,

divided again on both faces into two sets of six by the long descending line after No. 18. Another six sign-groups, divided into 3 and 3 in one case and 4 and 2 in the other, brings us to 30, the concluding number, *ex hypothesi*, of the body of the inscription on Face A (II) as well as B (I). There are here, therefore, traces in both cases of a division into two dozens and one half.

The parallelism extends moreover in some cases to the disposition of particular sign-groups. Thus, for instance, it may be noted that the sign-groups A 1–4 and 13–16 show a certain conformity. The first corresponds with the fourth in both

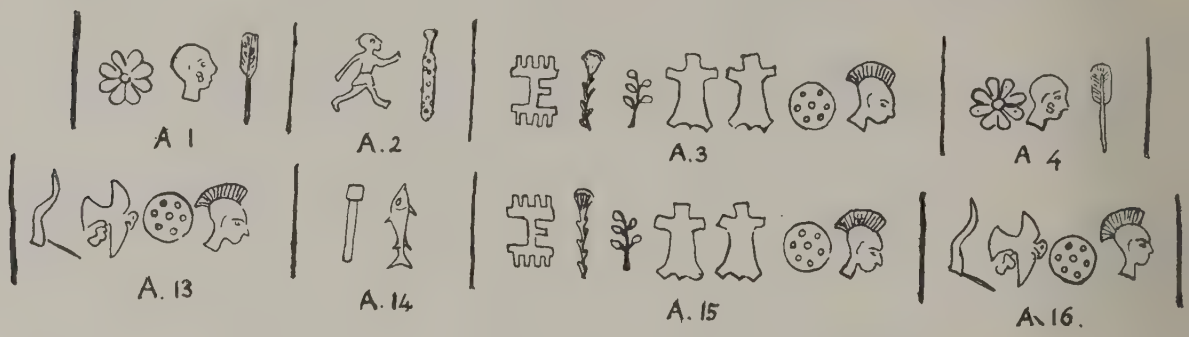


Fig. 131 (Table XXVI). Examples of Parallel Disposition in Sign-groups.

series, and the same exceptionally long group appears in the third place. So, too, the respective groups of four and five signs, No. 10 in A and B, forming there a section by themselves, reappear as the first groups of the section that begins with No. 13 on both faces of the Disk.

Recurrent sets of sign-groups: perhaps refrain.

It appears, moreover, that on Face A two of the sections containing the same sign-groups are repeated in the same order. Thus we see:

10 — 11, 12
16 — 17, 18

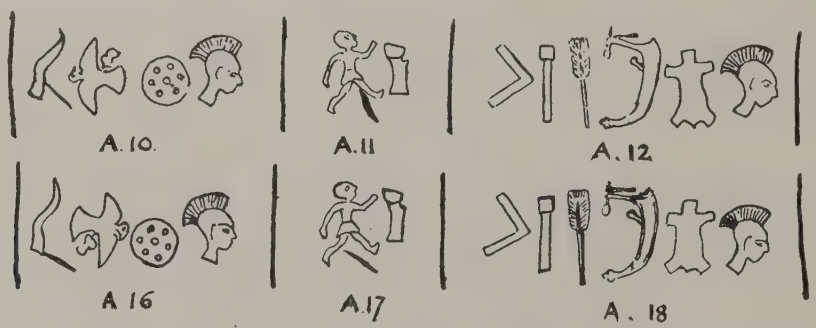


Fig. 132. Sets of Sign-groups repeated.

Have we here a kind of refrain? It is noteworthy that one of the sections thus repeated (A 10, 16) is composed of a single sign-group, which must therefore have stood as a single phrase by itself, such as an exclamation or religious cry of the kind so often met with in the Hebrew psalms.

III. § 6. THE INSCRIPTION POSSIBLY A RELIGIOUS CHAUNT IN HONOUR OF THE ANATOLIAN GREAT MOTHER

The traces thus revealed of an artificial arrangement, to a certain extent identical in both halves of the inscription, lead most naturally to the conclusion that we have here to do with a metrical composition divided into two equal staves. There can be little doubt that it follows the laws of a primitive music, and it may well represent some kind of chaunt or incantation.

The inscription a metrical composition.

This fits in with the indications already noted of religious elements among the characters of the Disk. Its derivation, *ex hypothesi*, moreover, from a Lycian source, makes it highly probable that the female breast, so constantly recurring in this composition, should be taken in its usual Anatolian sense as a symbol of the great Mother-Goddess.

Symbols of Mother-Goddess on Disk, such as female breast.

This 'breast' sign coupled with the enigmatic figure, o. 45, begins the whole inscription as arranged above and also occupies the first place in three further sections. Elsewhere we see it in juxtaposition or close connexion with the feline head—which is possibly that of a lioness—the special guardian of the Great Mother. This head in turn is in three cases[1] coupled with the insect, perhaps to be interpreted as her sacred bee. In a recurring formula,[2] in which the 'breast' sign also appears, the group is concluded by the feline head preceded by the 'double pipes', here taken to represent a religious instrument. On B 6, 18, 21 one or more of these signs is coupled with the pagoda-like building. Does it, perhaps, actually delineate a shrine of the Goddess?

It is possible that the frequently repeated 'hide' (No. 27) itself really represents the skin of a sacrificed beast. It is, moreover, noteworthy in this connexion that on B 14 this sign precedes the 'tiara' (No. 9), which has a singularly sacerdotal aspect, and that on B 4 the same 'tiara' is preceded by a head of a ram, an animal intimately connected with the cult of one or other form of the Asiatic Goddess.

Ox-hides perhaps in sacrificial connexion.

It is now well ascertained that in Minoan Crete there was also worshipped a kindred Nature-Goddess, the tradition of whom survived to later times as Rhea, Britomartis, Artemis Dictynna, or Aphrodite Ariadnê. This Minoan divinity, indeed, shows many of the attributes of her Anatolian sisters. Like Kybelê she was guarded by lions, and a cat-like animal, apparently a lion's cub, appears on the head of one of her priestesses or votaries. Under the form of the 'Snake Goddess'[3] she even wears a tiara of the same generic class as that on the Disk, and the female breast seems to have been her special symbol.[4] From the general associations of the figures on the Disk, however, their great divergence from Minoan hieroglyphic forms, and the pronounced non-Cretan character of some of the representations, it seems preferable none the less to trace the religious

The Mother-Goddess of Crete sister form to the Anatolian.

[1] B 2, 6, A 28, where the feline head is twice repeated.
[2] B 5, 10, 13.
[3] See 'Knossos', *Report*, 1903, pp. 74 seqq. and Fig. 54.
[4] See above, p. 282.

elements that seem to be discernible on the Phaestos Disk to some Anatolian sanctuary of the Great Mother.

Was there a sacred language?

It is, moreover, at least conceivable that in Minoan Crete, as in both the Orthodox Greek and the Roman Catholic Church at the present day, a sacred language representing an earlier stage of the vernacular was employed. Such a language, indeed, may well have corresponded with one that still survived in the old religious centres of the mainland side, where, as is generally agreed by philologists, the language, as well as the religion, was allied to that of prehistoric Crete.

Martial element on Disk; perhaps betokens hymn of victory.

It has been already remarked that several features among the characters of the Disk—the helmeted head, for instance, and the round shield, the horn bow, the vessel with an arrow at its prow—tend to show that the subject of the composition may have combined a martial element with the religious. Have we here, perhaps, an ancient chaunt of victory of the kind preserved in the Song of Deborah?

Disk not to be regarded as matrix.

The suggestion has been made by Dr. Pernier[1] that the Disk was itself a matrix or mould for the reproduction of similar disks in clay or other materials with the inscription in relief. Against the probability of this, however, may be set the minuteness of the details of many of the figures and the incised marks of division and distinction that certainly were not fitted for reproduction in an impression.[2]

Use of stamps explained by need of greater facility in reproducing hieroglyphic signs.

A more simple explanation of the method here adopted of forming the sign-groups by means of a series of punches is to be found in the great practical difficulty of applying the elaborate hieroglyphic characters to documents of any length. The graffito attempts to render these often really artistic forms result in a very degenerate form of script, such as we see on the clay tablets and labels of this class. These summary renderings were sufficient for the business ends served by the latter class of documents. But for a more solemn purpose they were altogether unworthy. It is probable, as already pointed out, that at the time when the Phaestos Disk was made the linear form of script, at any rate of Class A, was already in vogue in Crete. When the evolution of the Art of Writing had reached this definite linear stage, documents of any length could be written in a good 'Court hand'—such as we see in the case of some of the Knossian tablets—without prejudice to the dignity of the subject.

But how could the continued use of the monumental hieroglyphic type of script be reconciled with the desire to preserve longer records such as, in a linear form, no doubt by this time existed in Minoan Crete? It is obvious that the preparation of a series of fine punches of ivory or metal, representing the different characters of the hieroglyphic signary used, afforded a ready mechanical means of grappling with the difficulty. That the characters thus formed appear impressed on the Disk is itself in

[1] *Op. cit.*, p. 277. Dr. Pernier compares (loc. cit., Fig. 12 and note) a flat disk covered on one side with punched figures in the shape of small radiated circles, pellets, and a few barley grains, which bears the name of the well-known Aretine potter, Marcus Perennius, and which was certainly a mould.

[2] There exist certain late Greek moulds in the form of terracotta disks covered with various religious or talismanic symbols found in Southern Italy and especially at Taranto (cf. *J.H.S.* vii, pp. 44 seqq.), which were probably used for impressing sacred cakes. In this case, however, the sunken designs are of a bolder character, and there is no difficulty in recognizing the object of the disks as moulds or stamps.

close agreement with the general usage of incising the signs on the clay tablets and does not of itself afford any presumption of the Disk having served as a stamp.

Such elaborate stamps cut for more extensive compositions.

One conclusion we may at any rate draw from the elaborate character of the engraved punches here used. They could hardly have been made for the two sides of the Disk alone. Such beautiful 'type' may well have been executed for the imprinting of a much more extensive literary composition. The Disk at present stands alone, the inscription on its two faces forming apparently two successive staves of equal length followed by a concluding word such as 'hallelujah'. There remains, however, the possibility that the Disk itself was only one of a continuous series containing further verses of a longer metrical composition, imprinted with stamps from the same beautiful fount. The Disk would, in this view, represent but a single leaf from the lost Psalms, perhaps, of an old Anatolian religion. But in that case we should have expected some visible signs of numeration whereby its place in such a series might be determined.

ANALYTICAL INDEX

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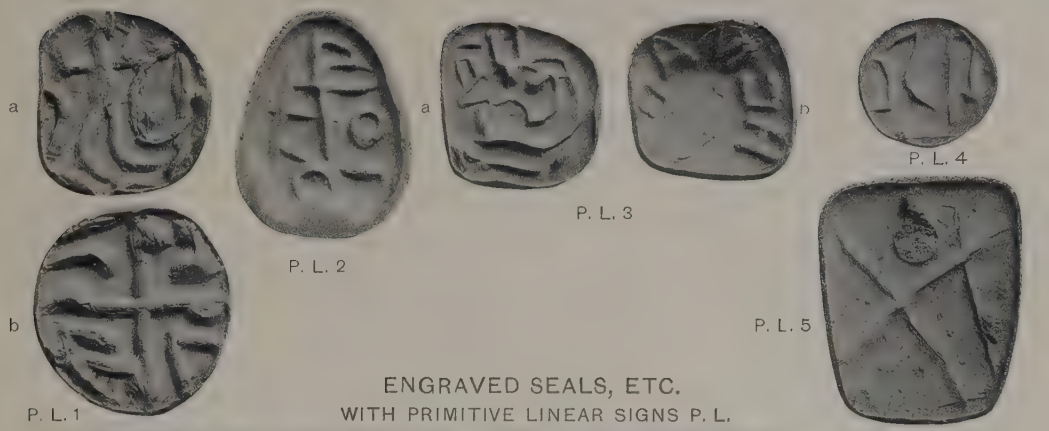
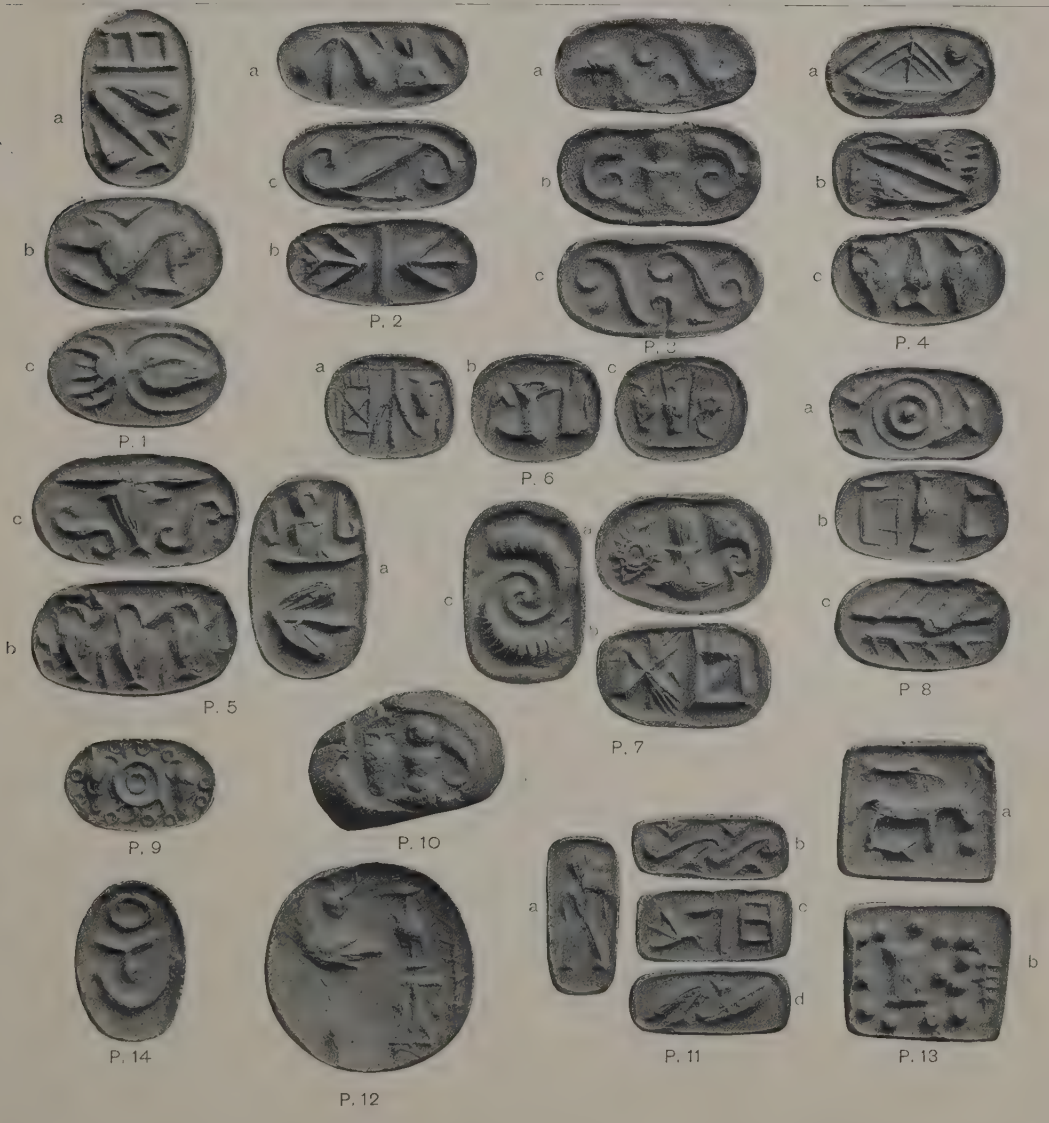


ENGRAVED SEALS, ETC.
WITH PRIMITIVE LINEAR SIGNS P. L.



SEALS WITH CONVENTIONALIZED PICTOGRAPHIC SCRIPT [P.]
CLASS A

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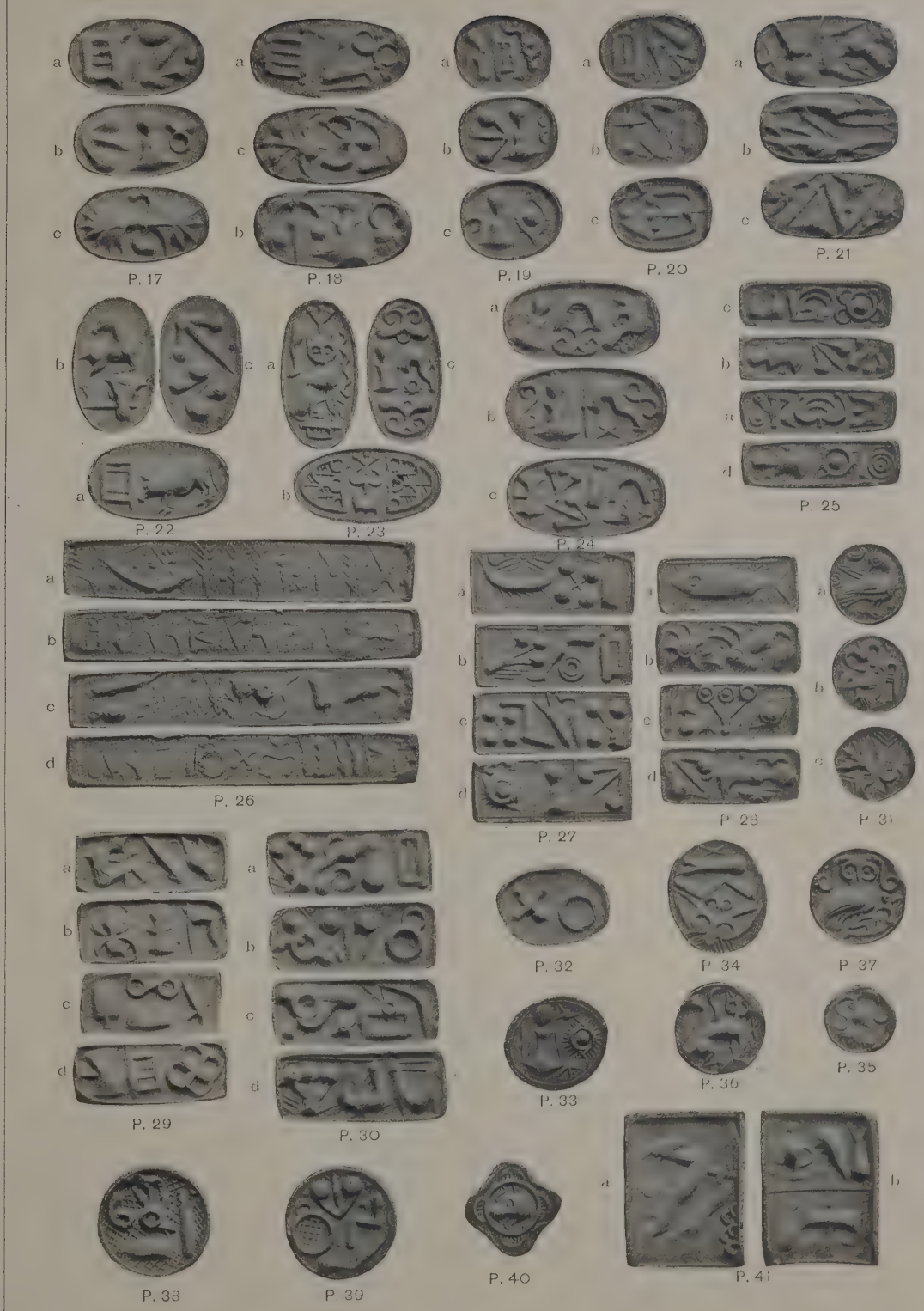

SEALS WITH CONVENTIONALIZED PICTOGRAPHIC SCRIPT (P.)
CLASS A

CLAY SEALINGS FROM THE PALACE OF KNOSSOS
WITH CONVENTIONALIZED PICTOGRAPHIC (OR HIEROGLYPHIC) SCRIPT

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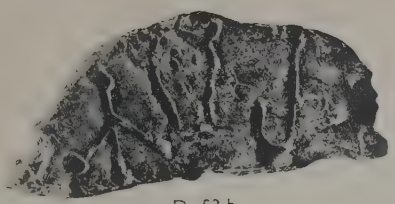
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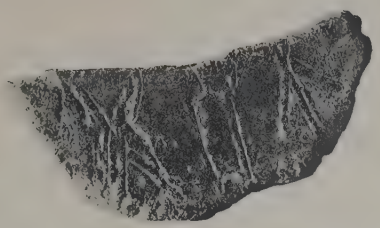
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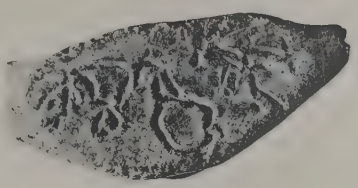
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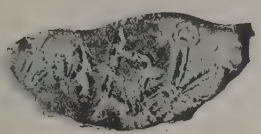
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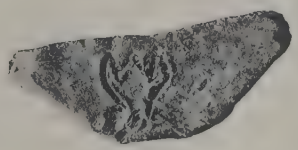
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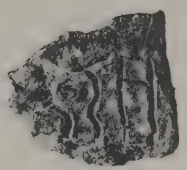
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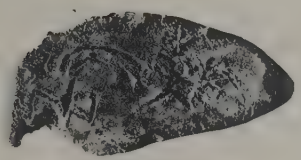
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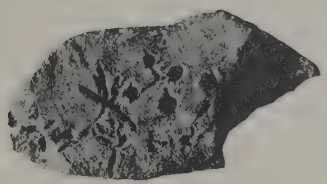
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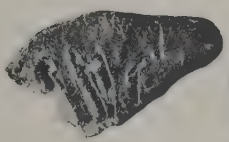
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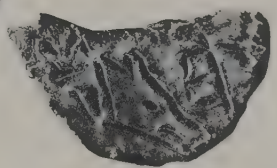
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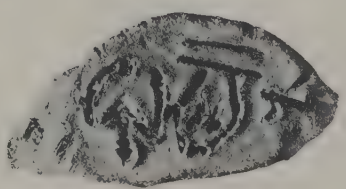
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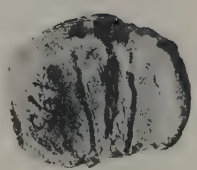

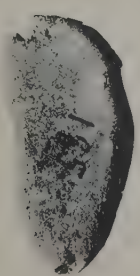
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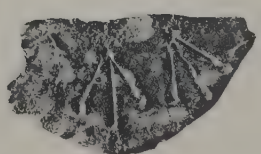
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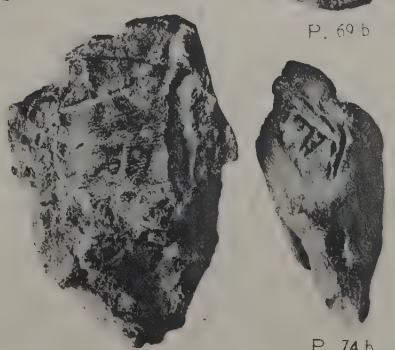
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CLAY LABELS FROM THE PALACE OF KNOSSOS

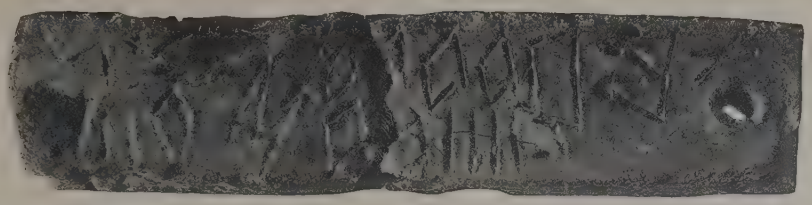
WITH CONVENTIONALIZED PICTOGRAPHIC (OR HIEROGLYPHIC) SCRIPT

CLAY LABELS FROM THE PALACE OF KNOSSOS
WITH CONVENTIONALIZED PICTOGRAPHIC (OR HIEROGLYPHIC) SCRIPT

CLAY LABELS FROM THE PALACE OF KNOSSOS

WITH CONVENTIONALIZED PICTOGRAPHIC (OR HIEROGLYPHIC) SCRIPT

CLAY LABELS FROM THE PALACE OF KNOSSOS
WITH CONVENTIONALIZED PICTOGRAPHIC (OR HIEROGLYPHIC) SCRIPT



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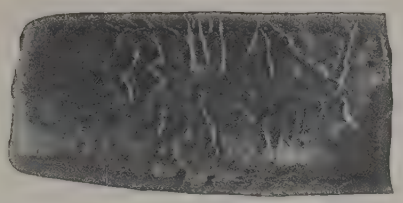

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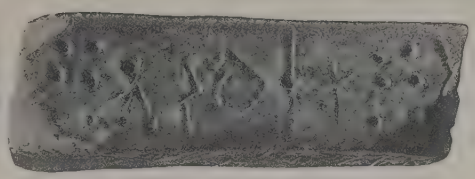

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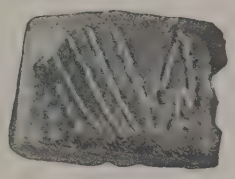
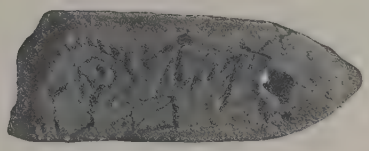


P. 106 a.

P. 107 a.



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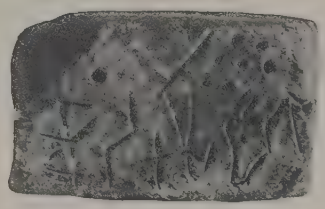

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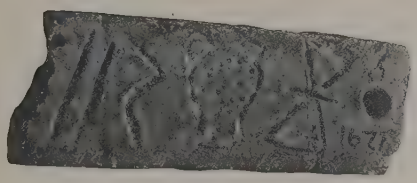

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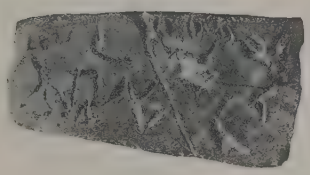

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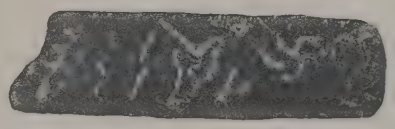

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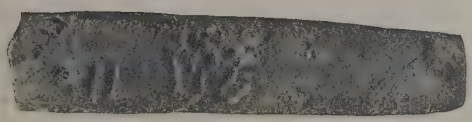
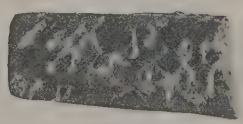
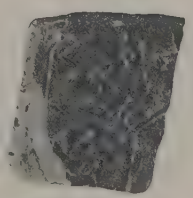


P. 112 a.

P. 113 a.

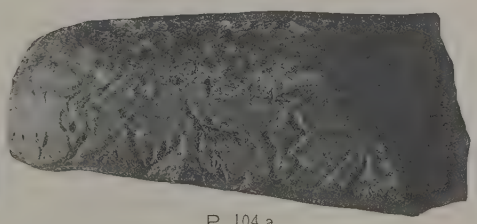


P. 114 a

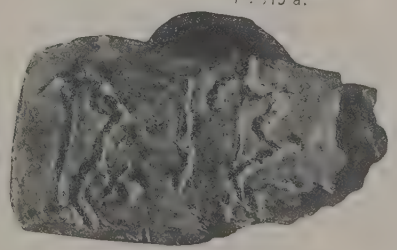


P. 115 a.

P. 117 a.

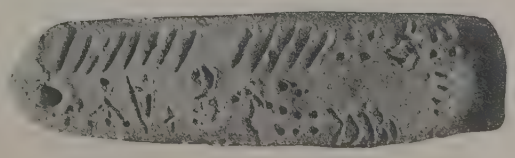


P. 104 a.



P. 119 a.

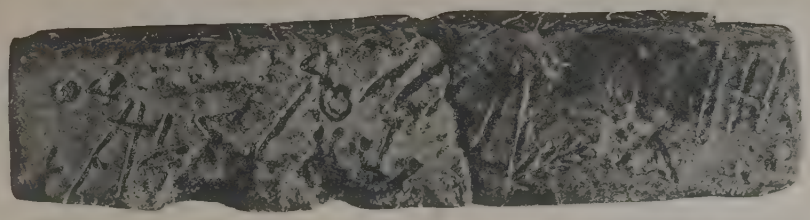
P. 118 a.



P. 116 a.

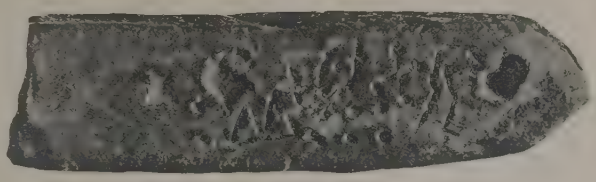
CLAY 'BARS' FROM THE PALACE OF KNOSSOS

WITH CONVENTIONALIZED PICTOGRAPHIC (OR HIEROGLYPHIC) SCRIPT



P. 100 b.

P. 101 b.



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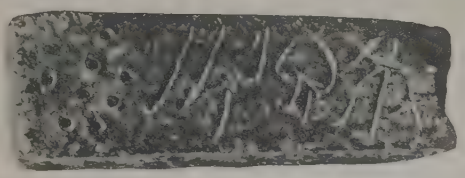

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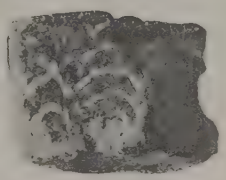

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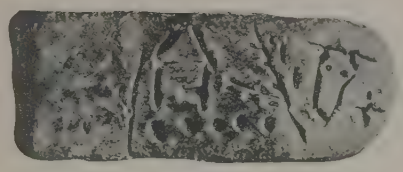

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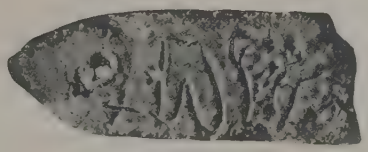
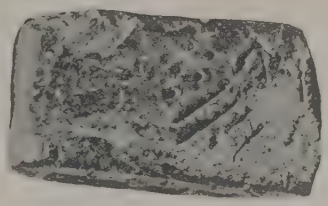


P. 102 b



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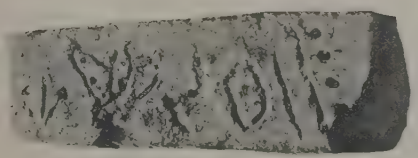

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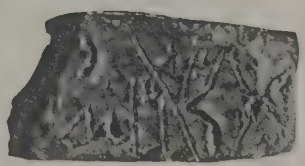

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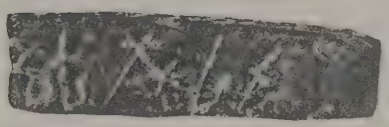
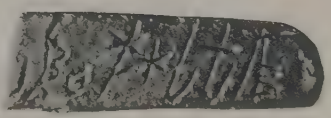


P. 111 b.

P. 112 b.



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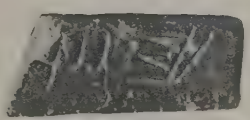

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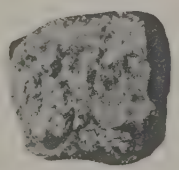
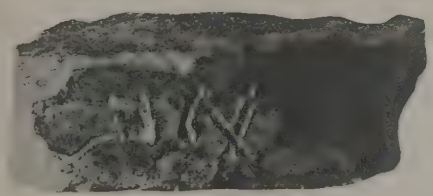


P. 115



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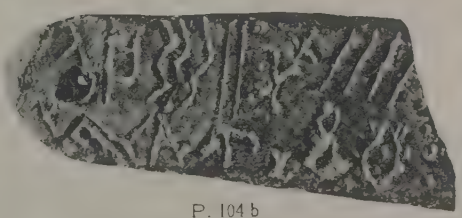

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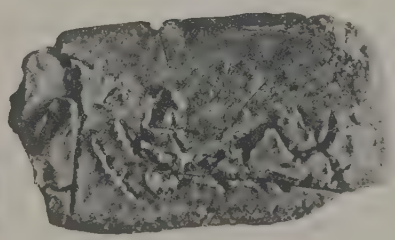

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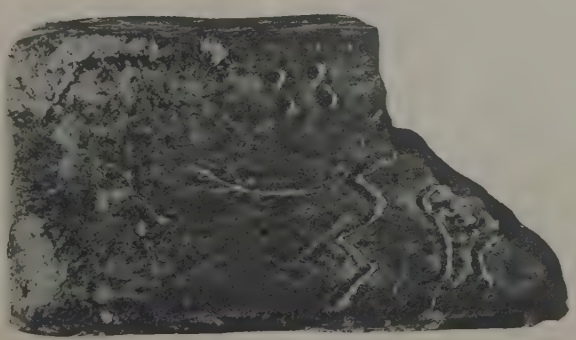

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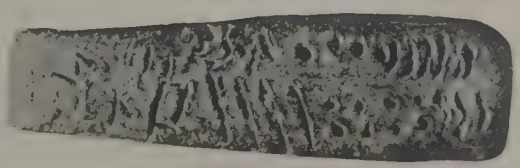
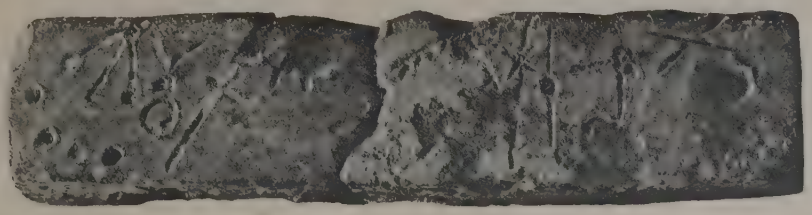


P. 116 b.

CLAY 'BARS' FROM THE PALACE OF KNOSSOS

WITH CONVENTIONALIZED PICTOGRAPHIC (OR HIEROGLYPHIC) SCRIPT



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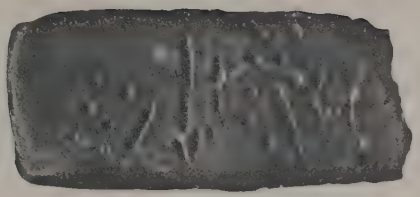
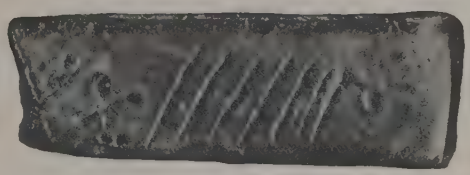


P. 101 c

P 103 c.



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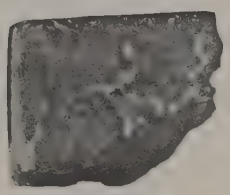

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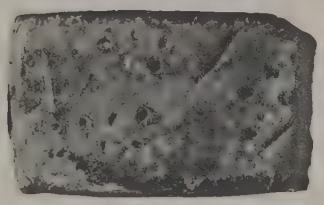
P 107 c.

P 102 c.



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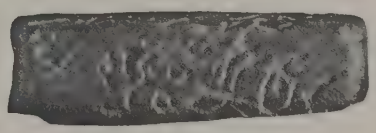
P. 109 c.

P. 110 c.



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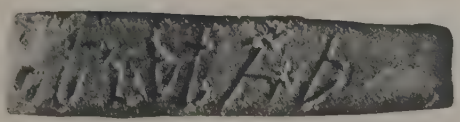
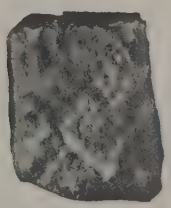


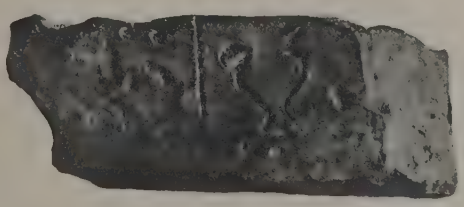
P. 112 c.

P 113 c.

P. 114 c



P. 115



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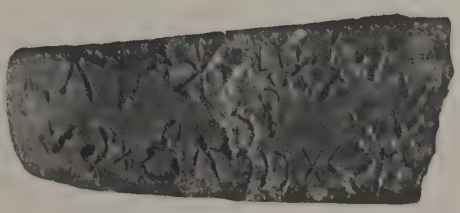
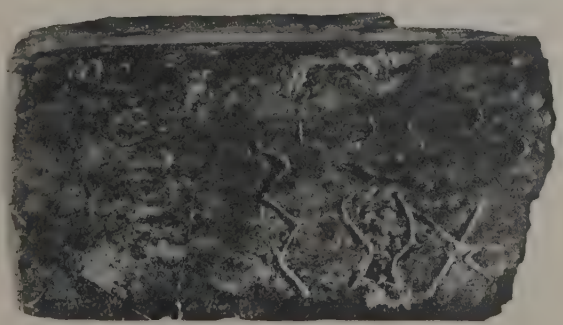


P. 104 c.

P. 119 c.



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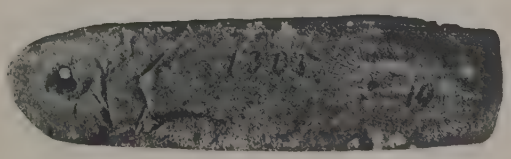
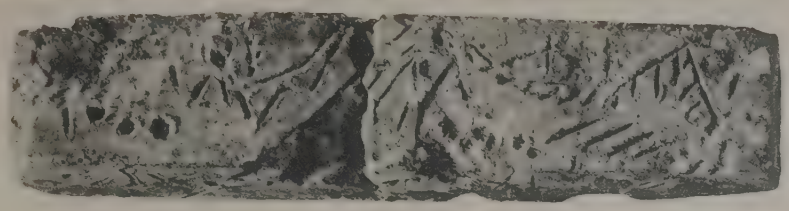


P. 116 c.

CLAY 'BARS' FROM THE PALACE OF KNOSSOS
WITH CONVENTIONALIZED PICTOGRAPHIC (OR HIEROGLYPHIC) SCRIPT



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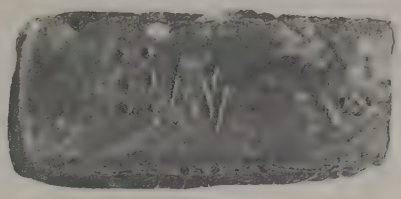
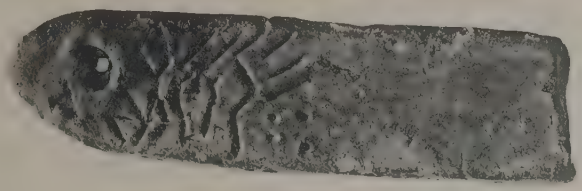


P. 101 d



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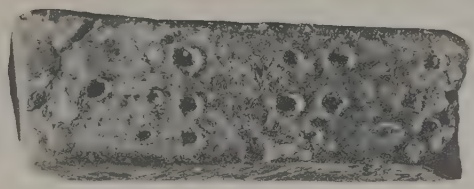

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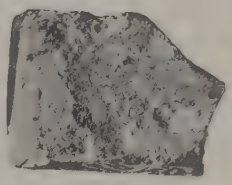
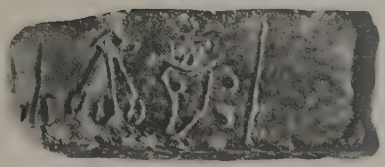
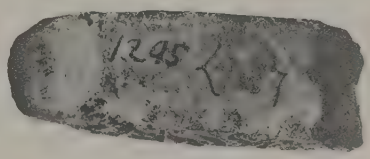


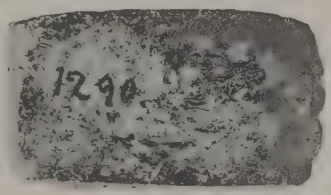
P. 106 d



P. 107 d.

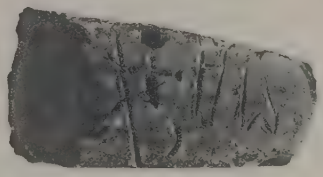


P. 102 d

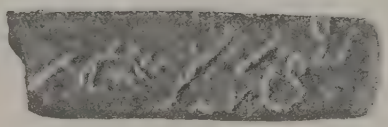


P. 108 d

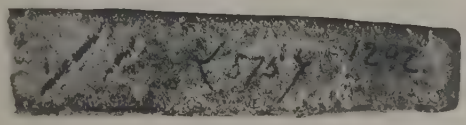
P. 109 d.



P. 110 d.



P. 111 d



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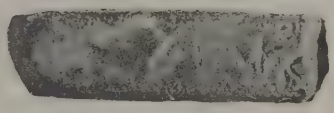
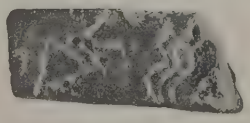
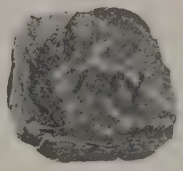


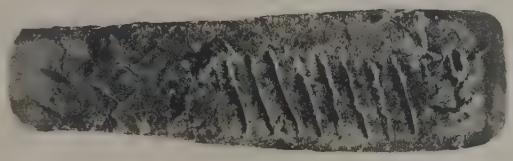
P. 113 d.



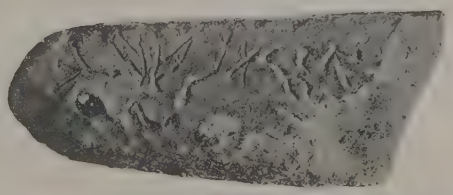
P. 114 d



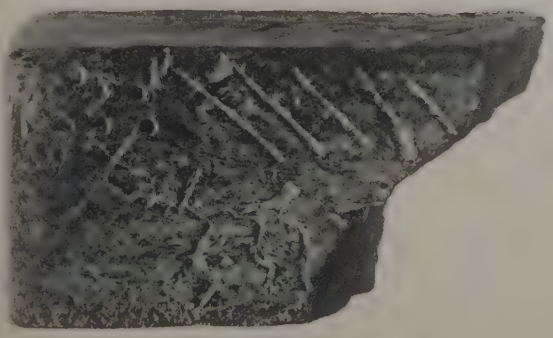
P. 115



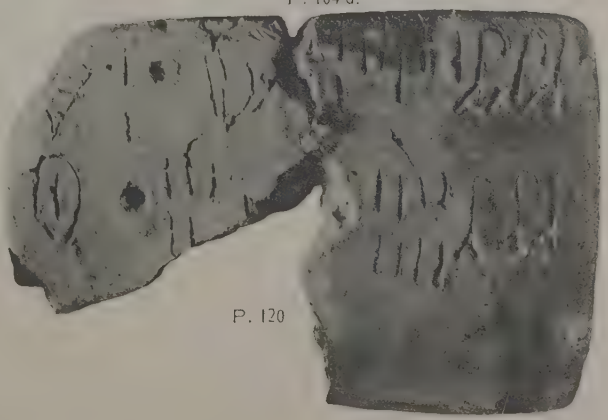
P. 116 d.



P. 104 d.



P. 118 d.



P. 120

CLAY BARS AND TABLET FROM THE PALACE OF KNOSSOS
WITH CONVENTIONALIZED PICTOGRAPHIC (OR HIEROGLYPHIC) SCRIPT

P. 121

c

d

a

c

P. 122

CLAY TABLETS
WITH CONVENTIONALIZED PICTOGRAPHIC (OR HIEROGLYPHIC) SCRIPT
(P. 121 PHAESTOS, P. 122 BERLIN MUS.)

THE PHAESTOS DISK. FACE A

THE PHAESTOS DISK. FACE B